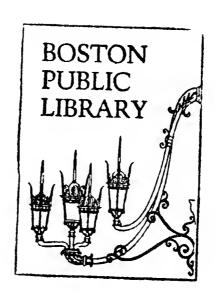
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Supplement
to

Draft Project Impact Report
[62188]

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# SUPPLEMENT TO DRAFT PROJECT IMPACT REPORT

Submitted to the Boston Redevelopment Authority

Submitted By Tremont Place Realty Trust

21 June 1988

### INTRODUCTION

The Supplement to Draft Project Impact Report (6/21/88) contains information requested by the Boston Redevelopment Authority in its Preliminary Adequacy Determination dated 31 May 1988. The Supplement together with the Draft Project Impact Report (3/14/88) constitute the Final Project Impact Report for 165 Tremont Street.

[062188]

### CONTENTS

T	THE A	ARTOR	$\Delta \cap T = A$	TION	COMPONEN	T
1.	111/	TNDI	CURIA	NULLI	COMPONEN	11

Preliminary Adequacy Determination

Traffic Management Exhibit A

Parking Management Exhibit B

Construction Management Exhibit C

### II. ENVIRONMENTAL PROTECTION COMPONENT

Preliminary Adequacy Determination

Wind Exhibit A
Shadow Exhibit B
Noise Exhibit C
Construction Impact Exhibit D
Air Quality Exhibit E

### III. URBAN DESIGN COMPONENT

Preliminary Adequacy Determination

### IV. HISTORIC RESOURCES COMPONENT

Preliminary Adequacy Determination

Historical Landmarks and Historical Designation Plans

Exhibit A

### V. INFRASTRUCTURE SYSTEMS COMPONENT

Preliminary Adequacy Determination

Utilities Letters Exhibit A

Discontinuance Plans Exhibit B

Utilities Letters (172 Tremont) Exhibit C

I. TRANSPORTATION

# Preliminary Adequacy Determination 31 May 1988

### I. TRANSPORTATION

### (A) Traffic Management Element

There are several discrepancies with respect to the data presented which need to be resolved. On page 4-4, work walk trips per unit is given as 0.39 and auto trips as 0.58, whereas on page 4-1, work trip mode split shows walk trips to be over twice auto trips (57% vs. 24%). In addition, total daily vehicle trips are given variously in the Access Plan as 129 and 139. Finally, on page 7-2, it is unclear why, if all 35 peak period vehicles use Tremont Street, the average hourly addition is only half or 17.5 vehicles. The 35 peak period vehicles are for each peak period. These discrepancies should be either clarified or corrected in the FPIR.

Some public comments received expressed concern over the capacity of Mason Street to accommodate added traffic sufficient to ensure delivery and trash vehicles' access to the adjacent Tremont-on-the-Common building. Any existing problems of circulation on Mason Street should therefore be documented in the FPIR. In addition, the Mason/West Street intersection should be analyzed given that it is to be the route of egress from the Parkside developments.

In addition, public comments received expressed concern over the trash removal plan for the building and its impact on traffic flow. Details on the trash removal plan should be provided in the FPIR, along with any mitigation measures.

### (B) Parking Management

The analysis of parking impact fails to respond to the following elements of the scoping determination:

(1) The impact caused by parking spaces displaced by the

project;

- (2) The impact on parking demand of the time and mode characteristics of visitors to residents of the project;
- (3) A description of how the total parking supply will be allocated among the three categories of demand (residential, visitor, commercial).
- (4) The access, curbcuts, and/or sidewalk changes required; and
- (5) The number, location, and dimension of loading docks.

The standard drawn from the TOC survey of garaging 79% of resident-owned cars on-site is not acceptable. Demand generated by the Parkside projects must be determined and the impacts of this project-generated demand mitigated. Mitigation measures could include accommodation of all project generated demand on-site.

The conclusions drawn with regard to (1) minor demand for visitor parking due to the convenient location of the project and (2) visitor demand coinciding with low resident demand are unsubstantiated, and therefore, the conclusions drawn are inadequate.

Allocation of the parking supply is unclear. The number of spaces allocated by use changes in different sections of the documents. For exmaple, the break-down between commercial and visitor parking spaces is given variously as 4/10 in one section of the document and 7/17 in another.

The use of off-travel areas for visitor parking is not acceptable; visitor parking must meet all code rquirements for parking with respect to square footage allocation, design, clearances, etc.

As proposed, operation of the garage depends exclusively on valet service as residents are restricted from parking or retrieving their own cars. Valet service must be adequate to prevent queuing of vehicles entering the garage into the public right-of-way. According to Section 8.2.2., one valet will be on duty at all times with a second and additional part-time valet at peak hours, as required. The developer should substantiate that parking demand will, in fact, be adequately serviced by the number of valets proposed. Information should be provided about the amount of time required for a valet to park/retrieve a vehicle. The capacity of the porte cochere to accommodate stacking of vehicles should be given.

The proposed car rental scheme may discourage auto ownership. This scheme should be developed more fully in the FPIR.

A parking analysis should be submitted which shows whether the project conforms to the interim zoning planning objectives. In order for the Authority to determine whether the project is in substantial accord with the interim zoning, the project proponent should show that the project comples with the City's objectives regarding parking, as outlined above.

### (C) Construction Management

The report (page 8-5, 8-6) refers to possible street occupancy during construction. The BTD takes this opportunity to reiterate that no street occupancy permit will be granted for Tremont Street.

Exhibit A

# PARKSIDE EAST AND PARKSIDE AT MASON PLACE

This document is a supplement to the Draft Project Impact Report for the Parkside projects; together these documents serve as the Final Project Impact Report. The remainder of this document provides the additional materials requested by the Boston Redevelopment Authority and the Boston Transportation Department in their Preliminary Adequacy Determination. Each component of the Draft Project Impact Report which was determined as insufficient in the Preliminary Adequacy Determination is addressed below.

### **RESPONSES TO BRA COMMENTS**

# I. Transportation Component

# A. Traffic Management Element

#### Comment

The Preliminary Adequacy Determination found inconsistencies with respect to the numbers used for work walk trip generation rates (1.39 and 0.39) and the total daily vehicle trips (129 and 139). These discrepancies are typographic errors.

# Response

- Work walk trips per unit should be 1.39 on page 4.4.
- Total daily vehicle trips generated by Parkside East should be 139 on page 7-2.

### Comment

The Preliminary Adequacy Determination found the discussion about the number of peak period vehicles and peak hour vehicles on Tremont Street unclear.

# Response

• Thirty-five vehicles will be generated by Parkside East during each two hour peak period. Thus, during either peak hour roughly half of these trips will be generated.

If all these vehicles use Tremont Street, the project will add 17.5 vehicles during the peak hour.

### Comment

The Preliminary Adequacy Determination reiterated public concerns about the capacity of Mason Street for accommodating added traffic sufficient to ensure delivery and trash vehicles' access to Tremont-on-the-Common.

# Response

- The proponent will, to the extent feasible, use the same trash removal contractor as Tremont-on-the-Common to coordinate trash pick-up in one vehicle. Additionally, the proponent will work with the BRA to develop a schedule for deliveries to avoid peak hours.
- Traffic on Mason Street does not affect access to Tremont-on-the- Common's garage.
- The intersection at Mason Street and West Street is a "T"-intersection. Both streets are one-way facilities: West Street is one-way westbound and Mason Street is one-way northbound. Both provide one lane of traffic, with an approximate width of 12 feet. Parking is allowed on both streets. Manual traffic counts were performed at this location between the hours of 4:00 and 6:00 PM. The peak hour was found to occur between 5:00 and 6:00 PM. West Street had a volume of 338 vehicles, and Mason Street had a volume of 54 vehicles turning left onto West Street (the only permissible movement). Using the methodology outlined in the 1985 Highway Capacity Manual for unsignalized intersections, the facility was calculated to operate at level of service "A" with a reserve capacity of 552 vehicles.

Exhibit B

### B. Parking Management Element

#### Comment

The Preliminary Adequacy Determination defines the need to address the impact caused by parking spaces displaced by the project.

# Response

• The project results in the loss of two parking spaces. One of the spaces, however, was previously used exclusively by the occupant of 172 Tremont. Thus, the impact of displacement of these spaces is negligible.

### Comment

The Preliminary Adequacy Determination requests clarification of the impact on parking demand of the time and mode characteristics of visitors to the residents of the projects.

### Response

• Visitors' (to the proposed project) vehicles will be accommodated in the garage.

The details of visitor parking are discussed in Section 2 below.

### Comment

The Preliminary Adequacy Determination requests a description of how the total parking supply will be allocated among residential, visitor and commercial demand.

# Response

• The 275 spaces in the Parkside garages will be allocated such that a minimum of 11 spaces are reserved for visitors to the buildings. The remaining 264 spaces will be available for sale to residents of Parkside. Visitor cars will also be accommodated in vacant resident spaces.

### Comment

The Preliminary Adequacy Determination requests a description of the access, curbcuts and/or sidewalk changes required.

# Response

Access will be provided via Mason Street, and will require curb cuts. Both access
and egress to the garage will be provided via a porte-cochere off of Mason Street,
requiring one curb cut for access and one for egress.

### Comment

The Preliminary Adequacy Determination requests identification of the number, location and dimension of loading docks.

# Response

• The proposed project does not include any loading docks.

# Parking Management Element: Additional Comments

### Comment

The Preliminary Adequacy Determination requests replacement of the T-O-C parking demand rate with Parkside-specific rates. Additionally, it requires mitigation of the impacts of project-generated parking demand.

# Response

 Parking demand rates at Parkside West as of April 1988 are exemplified by the sale of 71 units and 63 parking spaces for an average of 0.89 spaces per unit. Thus, projected demand for the three Parkside projects is 225 of the 275 parking spaces, and all project-generated demand will be accommodated on site.

### Comment

The Preliminary Adequacy Determination requests evidence to support the conclusions that visitor parking demand will be minor and will coincide with low resident demand.

# Response

The 1985 ITE Parking Generation report shows an average peak parking rate (including visitor parking) for residential condominiums of 0.95 spaces per unit. This rate is based on a survey of peak occupancy at 18 condominium buildings. The 1987 ITE Parking Generation report shows an average peak parking rate of 1.11 spaces per unit. However this rate is mostly based on suburban California areas where auto ownership and parking needs are substantially higher than those in Downtown Boston. These rates compare with the 1987 ITE rate of 0.88 spaces per unit for high rise apartment buildings in or near major central city areas. We would expect peak parking demand for the Parkside projects to range between the high rise apartment and suburban California condominium rates of 0.88 and 1.11 spaces per unit respectively, and the 0.95 spaces per unit (1985) rate can serve as a reasonable estimate of peak parking demand. Given this level of demand, the number of spaces provided at Parkside (1.09 spaces per unit) is more than adequate to accommodate peak parking demand for both residents and visitors.

### Comment

The Preliminary Adequacy Determination requests clarification of the allocation of parking supply.

# Response

• The 275 spaces in the Parkside garages will be allocated such that a minimum of 11 spaces are reserved for visitors to the buildings. The remaining 264 spaces will be available for sale to residents of Parkside, but can be used for visitors' cars when vacant. No spaces will be reserved for commercial parking, as the types of retail spaces in the Parkside buildings will not generate new vehicle trips and the proponent does not want to encourage employers or customers of the retail establishments to bring their automobiles into the area by providing convenient parking.

### Comment

The Preliminary Adequacy Determination states that the use of off-travel areas for visitor parking is unacceptable.

# Response

• Eleven spaces which meet all code requirements will be reserved for visitors.

Additional visitor cars will be parked in vacant resident spaces, if necessary.

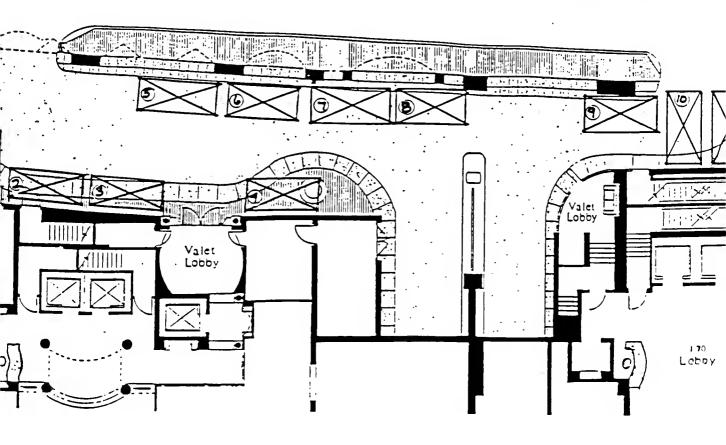
### Comment

The Preliminary Adequacy Determination requires substantiation of the fact that parking demand will be satisfied by the number of valets proposed. Additionally, the capacity of the porte cochere to stack vehicles was requested.

# Response

seconds to 4 minutes and 32 seconds, according to the Eno Foundation ("Traffic Design of Parking Garages," 1957). This range includes large facilities which require tickets and payment on entrance and exit, respectively. Thus, the average handling time at Parkside is expected to be toward the lower end of this range. As a conservative estimate, if we assume that the average handling time at Parkside will be 3 minutes and 30 seconds, each attendant will be able to handle 17 cars per hour. One valet will be on duty at all times at each of the Parkside garages (i.e., two valets will be on duty at all times). An additional part-time valet and, if required, two part-time valets will be available at peak hours. Thus during the peak hours when a minimum of three attendants are on duty, a minimum of 51 cars/hour can be handled. Additionally, the porte cochere can accommodate 11 vehicles, to prevent queuing of vehicles entering the garage onto Mason Street.

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165 and 170 Tremont

Visitor Stacking and Parking for Porte Cochere

### Comment

The Preliminary Adequacy Determination requested exploration of alternatives to the proposed use of Tremont Street for off-loading.

# Response

Mason Place will be used for loading during move-in, and most later deliveries
will be made with smaller trucks and vans which can use the north parking lane of
Avery Street. Additionally, occasional use of Mason Place to accommodate
move-in and move-out activity is being explored.

The proponent has attempted to provide and price parking at a level which is adequate to accommodate all site-related vehicles (both resident and visitor), but which also encourages residents not to own cars by:

- pricing spaces at a level which does not encourage car ownership.
- pricing second spaces at a higher rate to discourage two auto households.
- providing on-call car rental service to residents to eliminate the need for auto ownership. This service allows residents to arrange car rentals through the Parkside concierge. The car will be delivered to the resident at Parkside.

#### I. TRANSPORTATION COMPONENT

(B) Parking Management - Car Rental Service

In a further effort to reduce the need for resident auto ownership, the developer will implement a plan whereby it will provide on-call car rental service to Parkside residents.

Under that plan, the Parkside concierge will make available to residents information concerning the availability and cost of rental vehicles. Should a resident require a rental vehicle, the concierge will make the appropriate arrangements with the rental agency for both procurement and return of the vehicle.

### **RESPONSES TO BTD COMMENTS**

### Traffic:

### Comment

The Preliminary Adequacy Determination requests a comparison of existing traffic volumes on surrounding streets with forecast project-generated trips.

# Response

The Parkside East and Parkside at Mason Place projects are estimated to generate a total of 46 trips during the AM and PM peak hours. Due to the street pattern in the vicinity of the site, all site-generated traffic must use Tremont Street. For this reason, it is assumed that all trips will pass through the Tremont Street/Boylston Street intersection. At this intersection it is estimated that 40% will use Boylston Street to the west, 10% will continue straight through on Tremont Street, and 50% will use Essex Street.

Four of the six intersections analyzed in the Lafayette Place Study will be impacted by the proposed project. Table 1 shows the total existing entering volumes as presented in the Lafayette Place Study. The increase of each, due to the proposed project. The added traffic attributable to the project is minimal, averaging 2.5% in the AM peak and 2% in the PM peak.

The effect of these added trips on the operation of any of these intersections will be minimal.

		TABLE 1		
Intersection	Peak Hour	Existing Total Entering Volume	With Parkside Total Entering Volume	Percent Increase
Boylston St./ Tremont St.	AM PM	1629 2202	1675 2248	2% 2%
Kingston St./ Ave. de Lafayette/ Essex St.	AM PM	547 872	573 898	5% 3%
Essex St./ Harrison Ave./ Chauncy St.	AM <b>PM</b>	1044 1149	1070 1175	2% 2%
Surface Artery/ Essex St./ Lincoln St.	AM PM	2672 2974	2698 3000	1% 1%

# Parking:

# Comment

The Preliminary Adequacy Determination questions the comparability of T-O-C and the Parkside projects in terms of parking requirements and trip generation.

# Response

While the Tremont-on-the-Common survey showed that 41% of the residents are 50 or older, it also showed that there are 1.2 workers per unit (as compared to the average occupancy of 1.5 persons per unit). Thus, it is not expected that the number of peak hour trips would be significantly higher than those given the Tremont-on-the-Common trip generation rates. Additionally, parking demand (based on Parkside West sales) is currently 0.89 spaces per unit. Finally, as was discussed in response to the BRA Parking Management Element, the peak parking rate is expected to be approximately 0.95 spaces per unit.

# Comment

The Preliminary Adequacy Determination questions the demand for and provision of commercial parking demand.

# Response

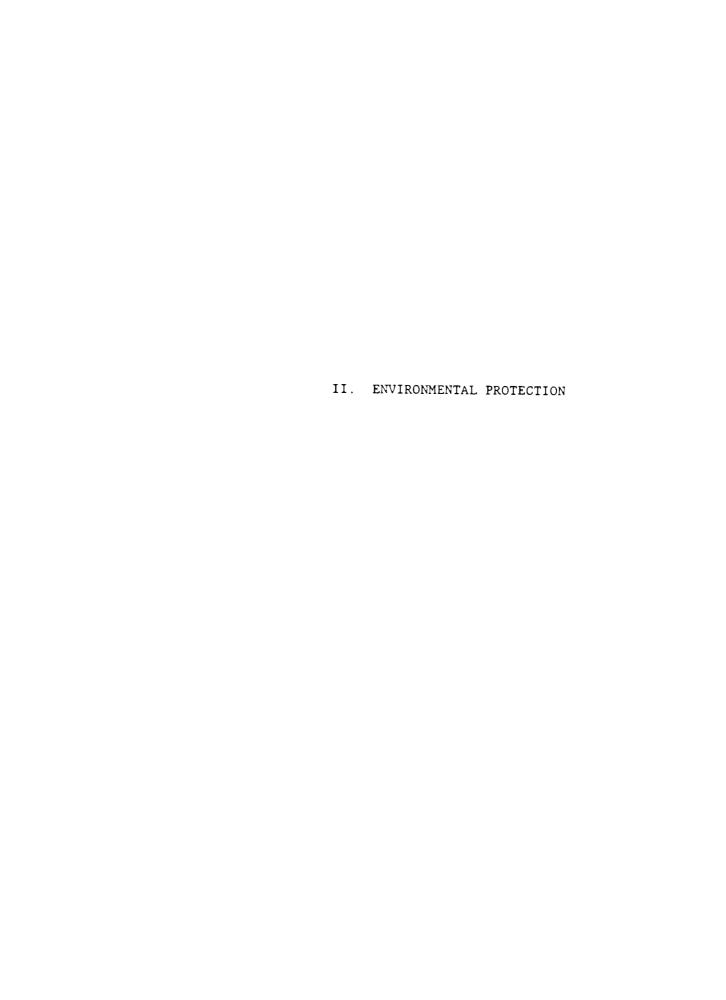
Parking will not be provided for shoppers because the retail space at Parkside is not expected to generate any new trips into the area, but merely to attract shoppers who are already in the area for another purpose. Additionally, provision of parking for shoppers will only encourage more vehicle trips into the area, an effect which is contrary to the City's objectives.

# Comment

The Preliminary Adequacy Determination requests clarification of the visitor parking accommodations.

# Response

Visitor parking was discussed in the responses to the BRA comments (Section B.2).



# Preliminary Adequacy Determination 31 May 1988

#### II. ENVIRONMENTAL PROTECTION COMPONENT

#### (A) Wind

The wind study indicates that mitigation measures are required to reduce winds at locations 8, 10(b), and 23 to acceptable levels. Mitigation measures include construction of a solid gate at the entrance to the Mason Place plaza and tree plantings along Tremont and Avery Streets. A stated commitment to provide these mitigation measures should be included in the FPIR.

In addition, the velocities given in Tables 3 and 4 do not appear to agree with the velocities given in the seasonable tables in Volume II, from which it is assumed they were devised. The tables 3/4 velocities (annual) are somewhat lower, in some cases significantly lower (e.g., Station 6, planned). The FPIR must correct this apparent discrepancy or provide a satisfactory explanation for the differences.

Page 4 of the wind study report notes an "Attachment A," but this attachment was not included with the submission. This attachment should be submitted with the Final PIR.

Except for the corrections noted above, the wind impact analysis submitted is sufficient in describing the pedestrian level wind impacts of the proposed project and is substantially in accord with the scoping determination.

#### (B) Shadow

In the FPIR, various technical errors in the Shadow Study should be corrected. These include the key which is mislabeled throughout the study with respect to existing buildings and Parkside buildings. Furthermore in some studies, shadows shown for an existing building are toned for a Parkside building and vice versa. (See, for example, June 21 3:00 p.m.). All studies should be

rechecked for accurate presentation.

In addition, the statement on page 16 of the Submittal Report is incorrect in stating that the project "will increase the length of shadow on the Common for <a href="brief">brief</a>
periods during the morning hours, but will have no effect after noon throughout the year." (emphasis added). On the contrary, the shadow drawings clearly show that the project (together with Parkside West and Mason) will increase shadow on the Common throughout the morning hours throughout the year and except from late spring to late summer, these shadows will last into the early to mid-afternoon. The FPIR should correct this statement.

Furthermore, the statement that these shadows would not have any material impact on the Boston Common plant life should be supported with appropriate documentation.

Except for the corrections noted above, the shadow analysis is sufficient to determine the shadow impact of the proposed project and is in accord with the scoping determination.

### (C) Noise

An evaluation of ambient noise levels to detrmine conformance with HUD standards has not been submitted and therefore this section is insufficient.

In addition, public comments received expressed concern about potential noise impact on residential units at Tremont-on-the-Common from the rooftop mechanical rooms. Therefore, a noise analysis and impact assessment of the mechanical equipment should be submitted to ensure that there are no adverse impacts on adjacent residential units.

### (D) Construction Impact

The construction impact submission is sufficient. However, public comments received expressed concern about the location of trash disposal equipment and its impact on traffic flow during construction. This should be addressed in the FPIR.

# (E) Air Quality

The air quality analysis is insufficient in that an evaluation of ambient air quality to determine conformance with NAAQS has not been submitted. The other air quality items in the scope have been adequately addressed.

Exhibit A

#### II. Environmental Protection Component

### (A) Wind Mitigation Measures

The wind tunnel testing was performed measuring ground level wind velocities at points selected by the BRA staff. The base test with the buildings only indicated certain spots at which wind levels were increased significantly above the existing threshold. proposed buildings (165, 170 and 172 Tremont Street) were retested in the tunnel employing various wind mitigation measures and it was determined that no velocities were created above 31 mph which is the BRA suggested maximum effective gust velocity. discussed in detail on page 17 of the "Quantitative Assessment of the Wind Effects of the proposed East Tower and Parkside at Mason Street" prepared by Technology Integration and Development Gorup and submitted as part of the Draft Project Impact Report for both Projects.

The improvements to ground level wind velocity based on the wind mitigation measures indicate that, of the 27 points tested, wind levels over the present no-build baseline are increased on an average of 3.17 mph at eight (8) test points and decreased over the present no-build baseline an average of 6.52 mph at twelve (12) test points. Points within 3% of the no-build baseline velocities are counted as constant owing to the margin for error between actual conditions and those in the model.

The wind mitigation measures employed at Parkside are as follows:

(1) The buildings are massed as three slender towers with slots between each mass. This allows for gradual siphoning off of the wind pressure of the horizontal vortex created by Tremont-on-the-Common as it heads southward down Tremont Street.

- (2) The surfaces of the buildings are modulated with projections and setbacks. This "roughening up" of the planar surface of the buildings causes friction which decreases some of the energy of the downward pressure of the wind against the Tremont Street facades.
- (3) At Mason Place, a 10' high operable gate will extend across the alley along Tremont Street save for a three foot wide pedestrian accessary at each end which will preserve open passage for residents of 80 Mason Street at all times. This gate will be wrought iron with clear glass insets and will be closed on days when wind pressures at the ground in Mason Place exceed a comfortable level. The management company servicing the condominium association will be responsible for the operation and maintenance of the gate.
- (4) In conjunction with the gate, trees will be employed to further ameliorate ground level winds around the buildings. Trees will be planted along Tremont Street in front of all three buildings and on the north side of Avery Street flanking the residential entrance. To further mitigate wind pressures at the rear of Mason Place, trees will be planted at the midpoint of the alley to diffuse wind in the rear to Mason Street.
- (5) Projecting awnings will be placed over the shop windows of 170 Tremont Street on the north side of Mason Place to provide additional protection for the 3'-0 wide "quiet zone" against the building which is created by a combination of the gate, trees and awnings.

One Progress Road Billerica, MA 01821 Telephone (617) 667-3779



20 June 1987

Hall, Davison & Company 20 University Road Cambridge, MA 02138

Attention: Mr. Scott Levitan

Subject: Clarification of wind impact report on

165 Tremont Street

Reference: BRA letter dated 31 May 1988, p. 5

Dear Scott:

This letter provides an explanation for the BRA observation that the velocities quoted in Tables 3 and 4 of our wind report are somewhat lower than the Tables included in Volume II. The explanation is straightforward.

The data in Volume II are "raw" data which must be corrected to account for an effect called wind-tunnel blockage (i.e., the constriction of the air passage caused by the model blocking a fraction of the wind tunnel cross section). The correction in this case is 3.7%, which is systematically applied to all the data in Volume II to arrive at the figures on Tables 3 and 4. There were some cases of concern (e.g., Station 6, planned). This station, as the others, has been corrected 3.7%. We apologize for not including this explanation in the report and for any inconvenience caused by this omission.

Very Truly Yours,

TECHNOLOGY INTEGRATION AND DEVELOPMENT GROUP, INCORPORATED

Richard E. Hayden

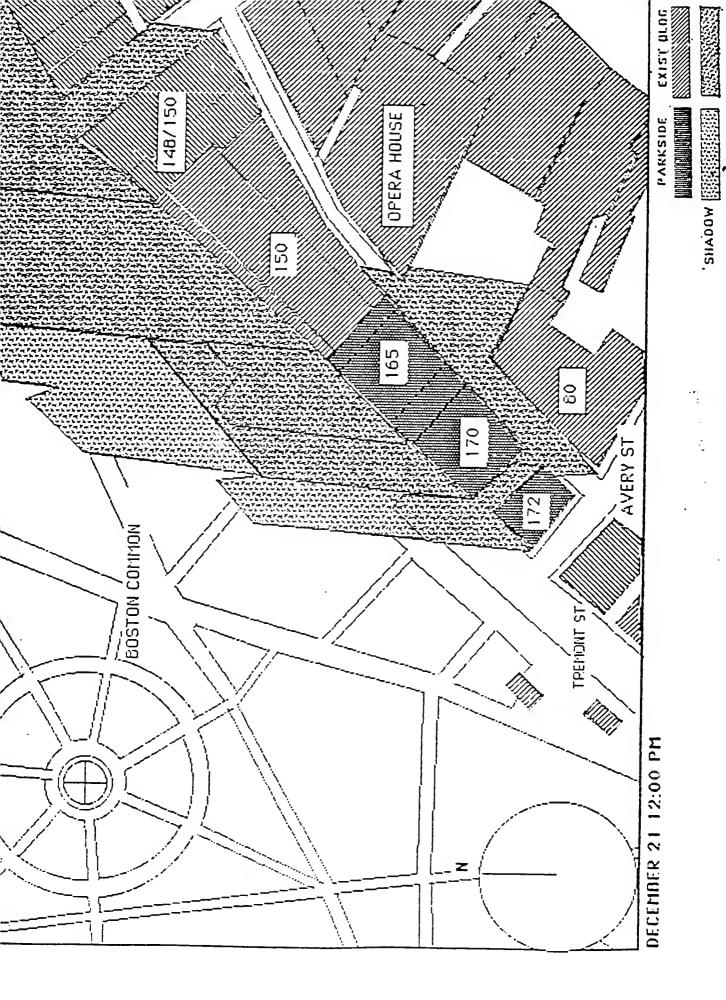
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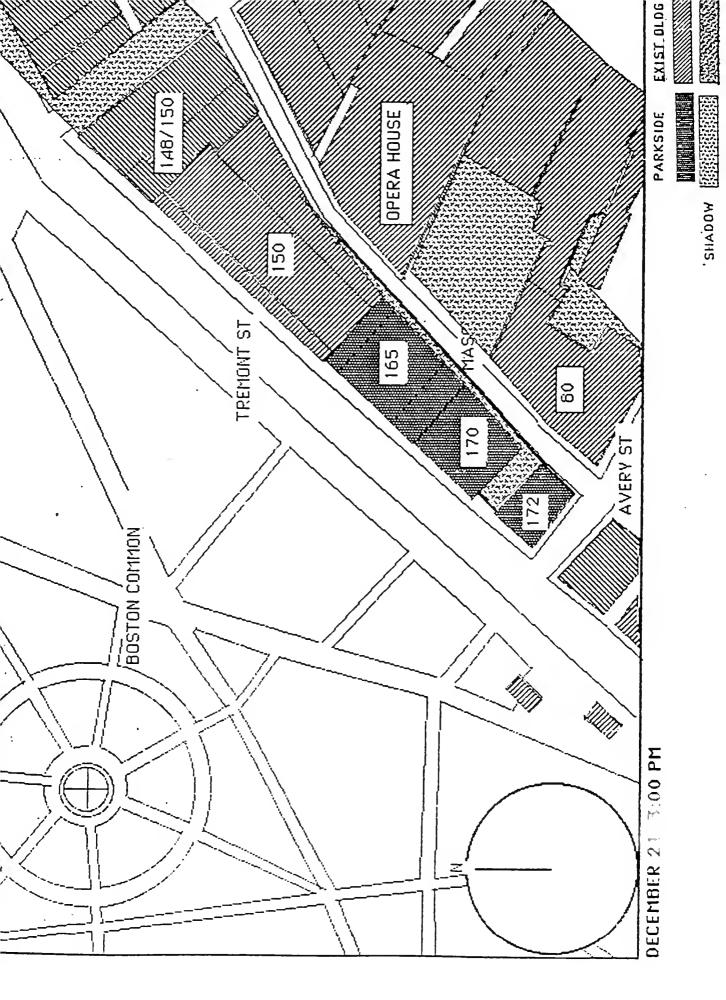
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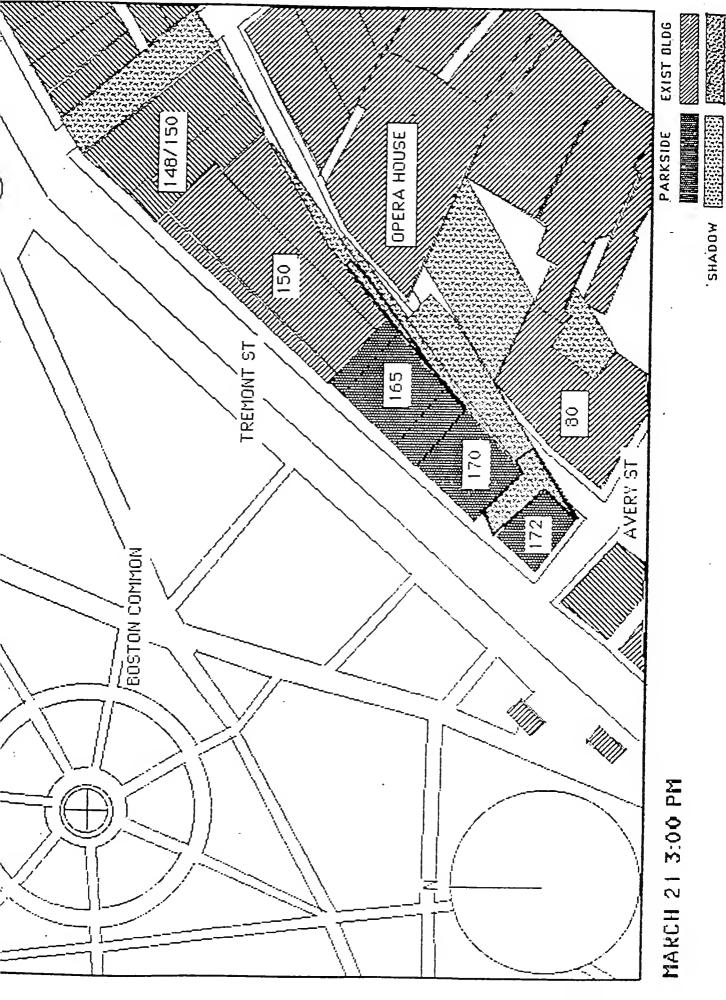
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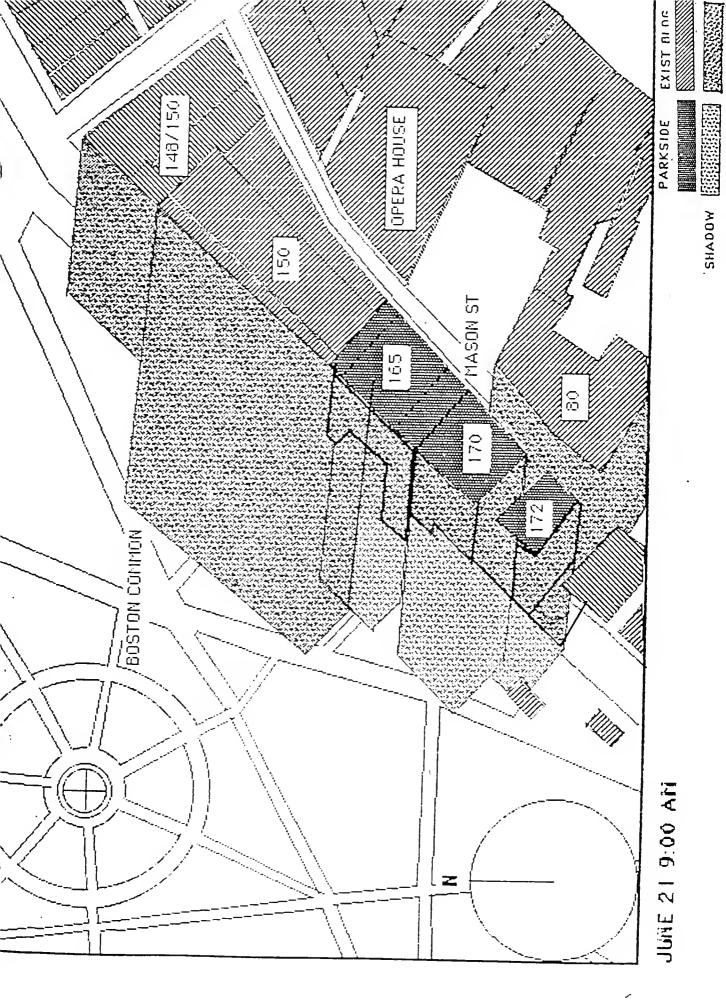
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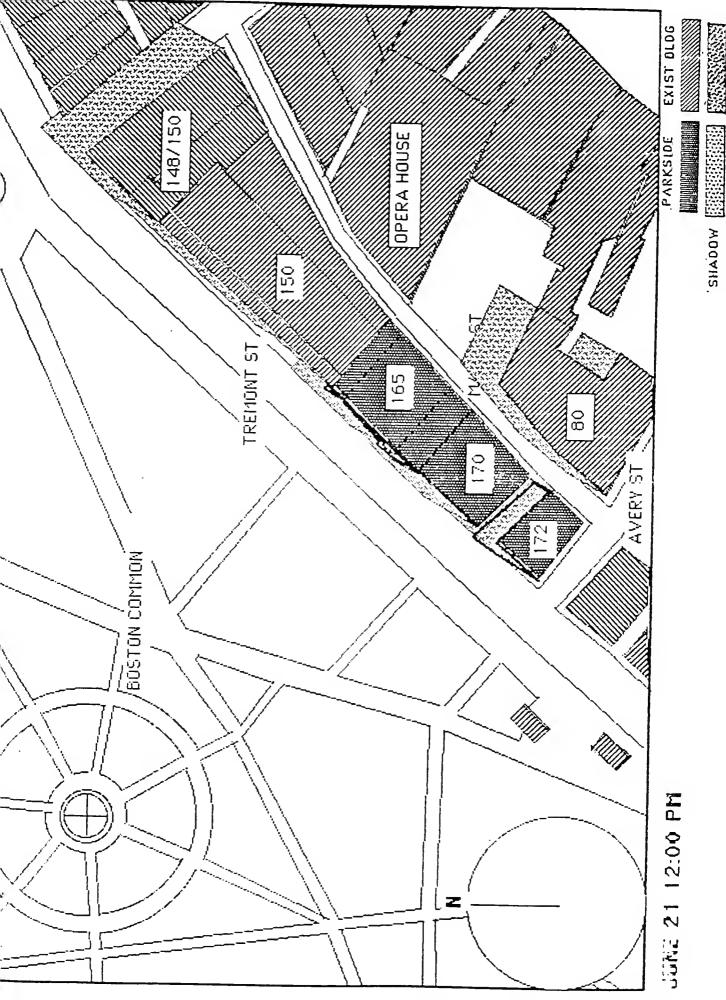


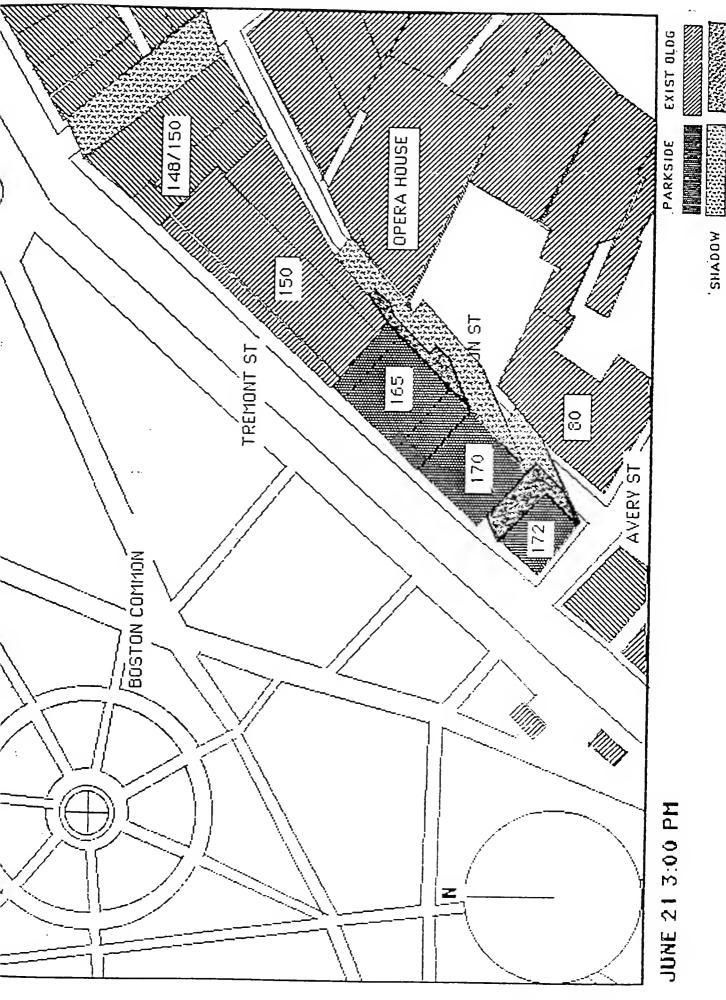


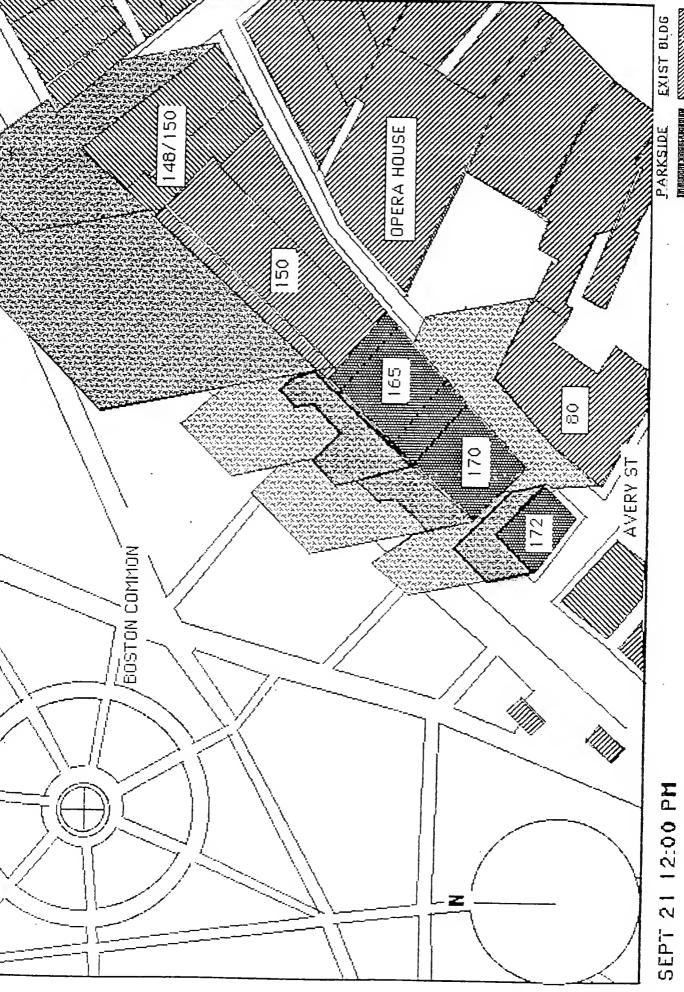
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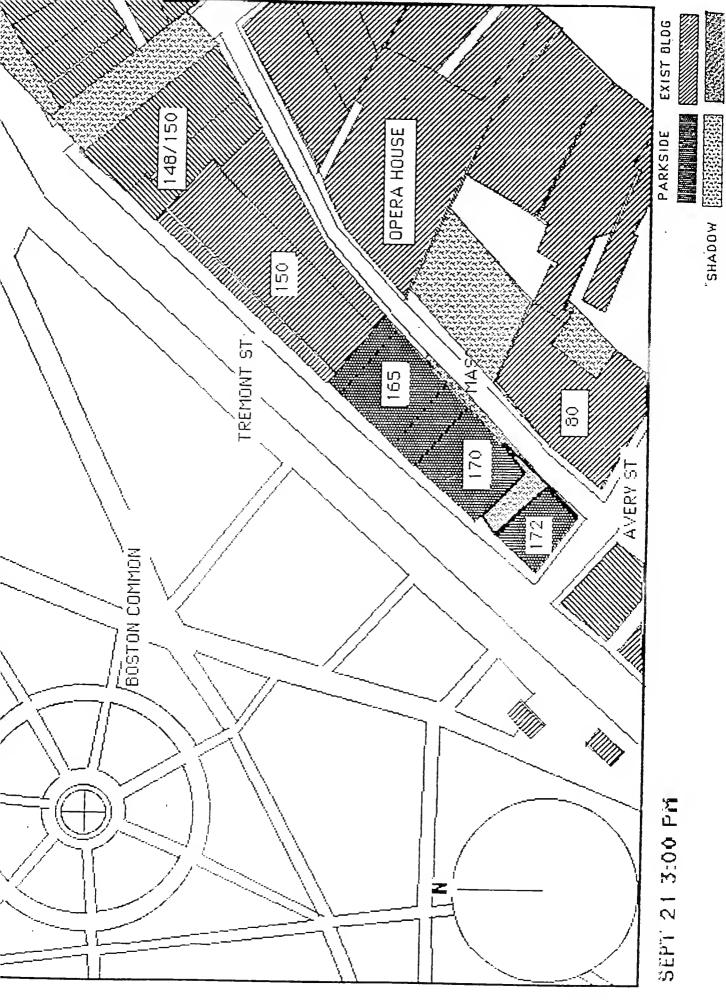


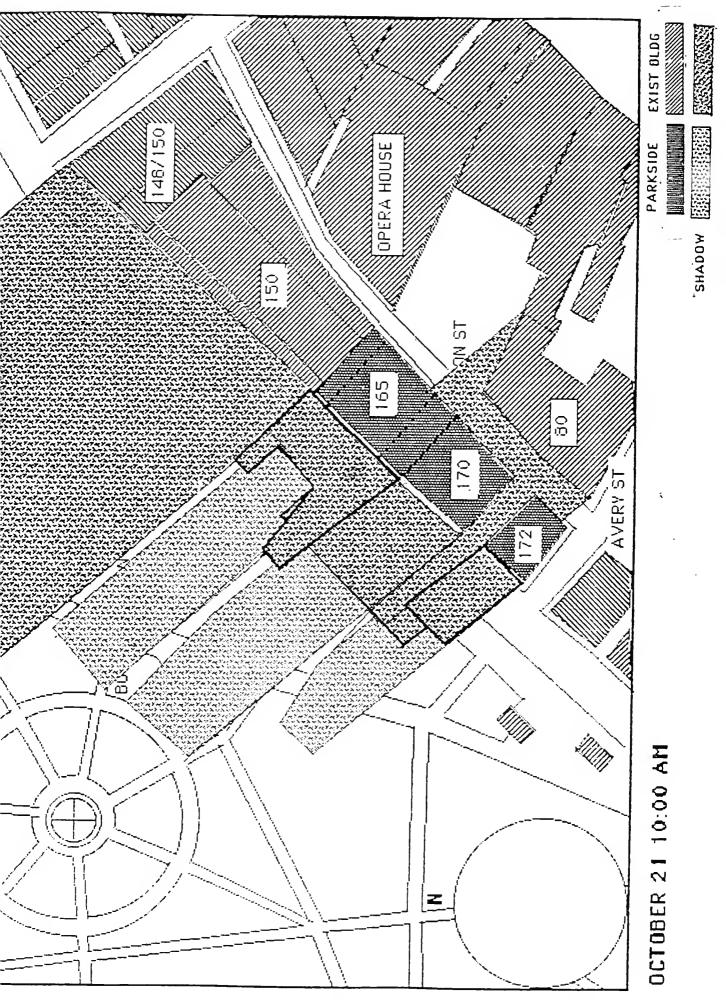


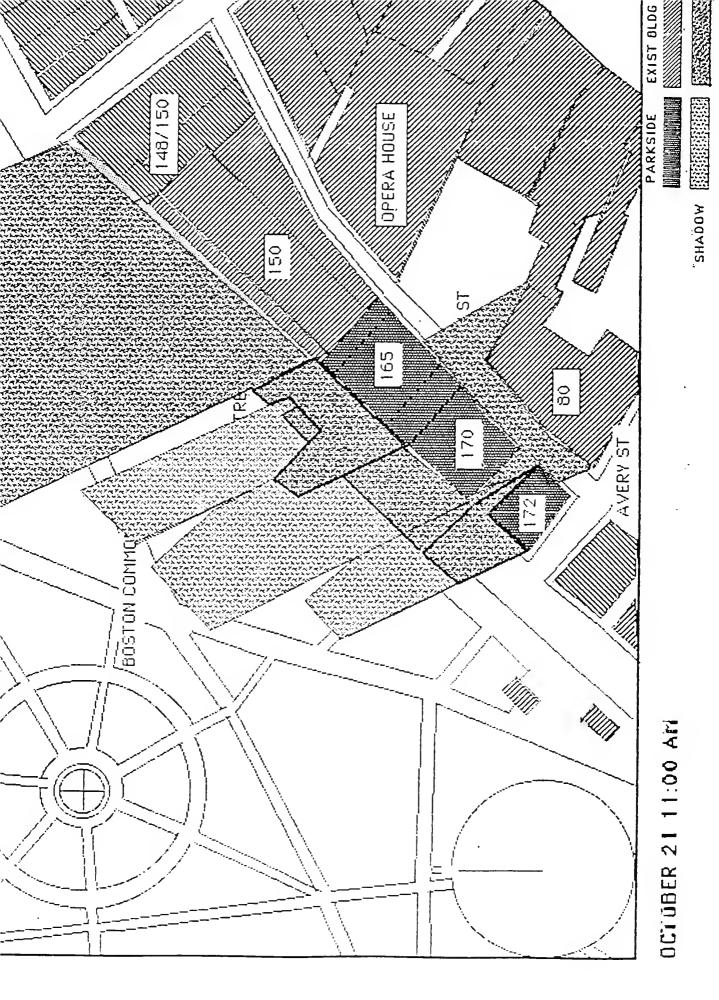


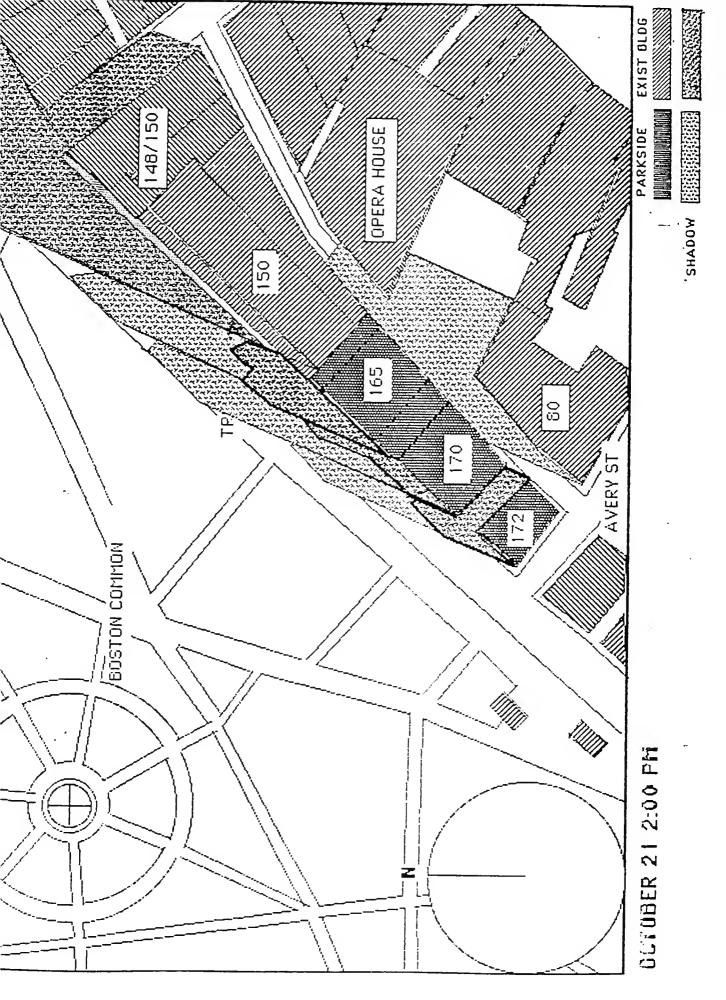


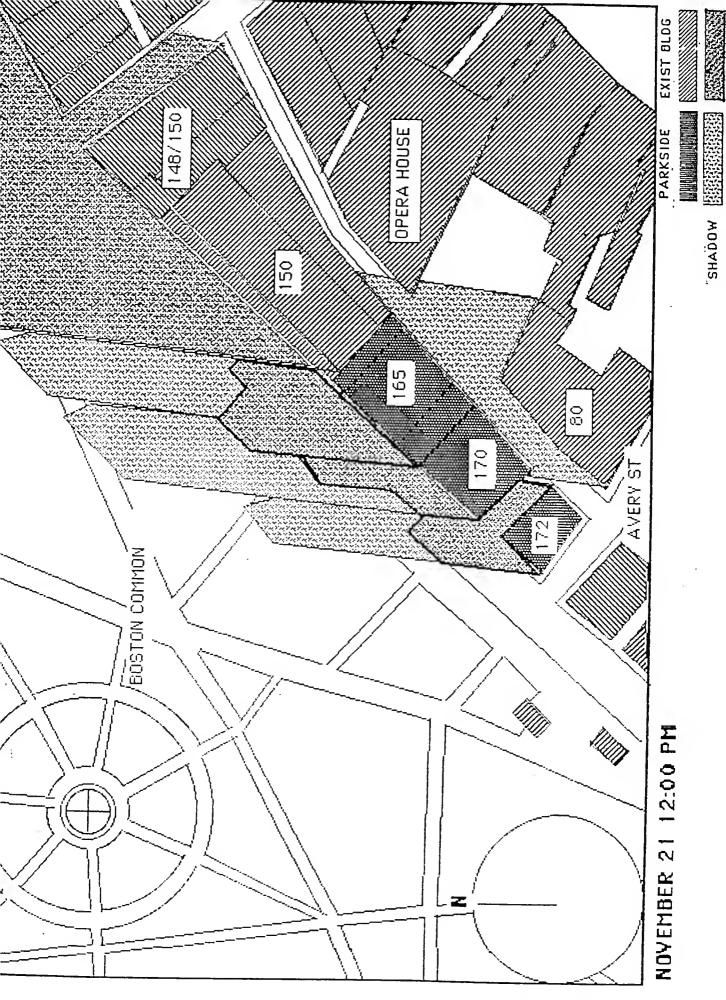


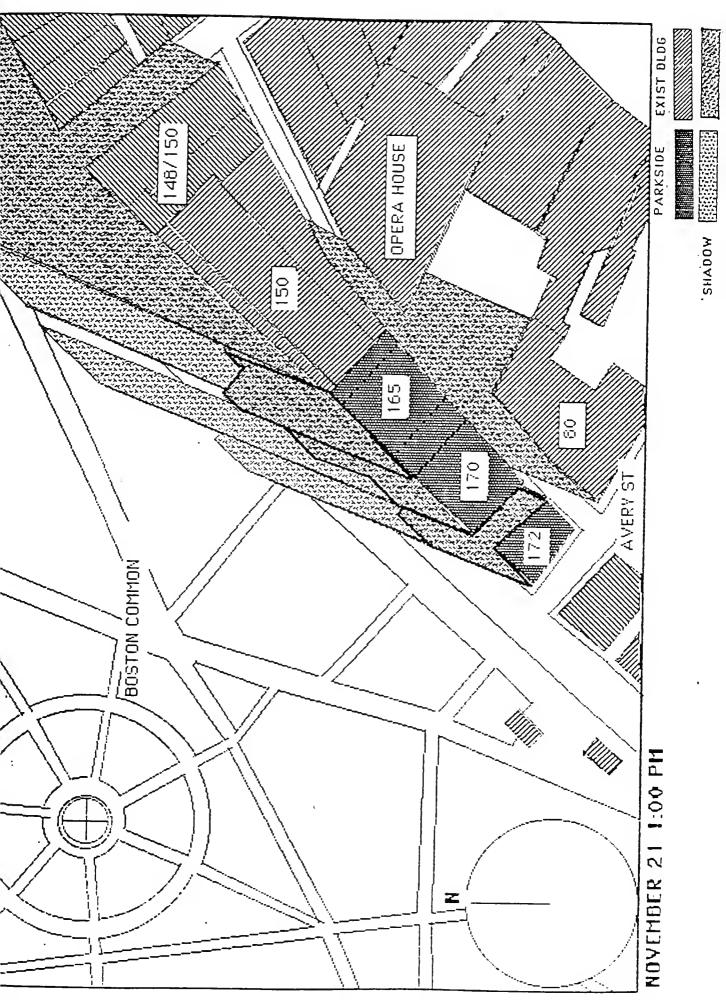


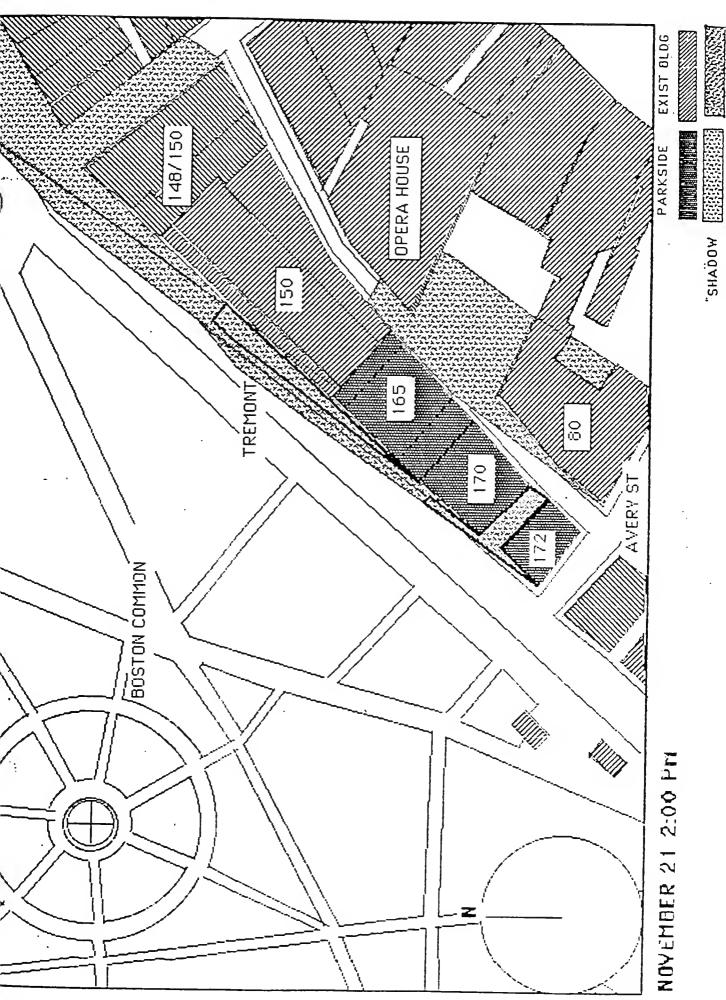












### II. ENVIRONMENTAL PROTECTION COMPONENT

### (B) Shadow

While the project will increase ahadow on the Common during the morning hours throughout the year, its north-south location on the Common in combination with the east-west movement of the sun limits afternoon shadow only to early-to-mid-afternoon hours from the fall to early spring months. This statement is provided to correct the statement on page 16 of the Draft Project Impact Report (3/14/88).

William Pressey & Associates, Inc.: LANDSCAPE ARCHITECTS 432 Columbia Street, Cambridge, MA 02141 617-491-5300

June 29, 1988

Susan N. Price
Hall Davison & Company
20 University Road
Cambridge, MA 02138

RE: 165 and 172 Tremont Street Boston, Massachusetts

Enclosed is a matrix titled "Material Impact of Shadow on the Plant Life of Boston Common for 165 and 172 Tremont". The purpose behind creating this matrix was to assess what the potential impact of the shadows cast by the new buildings at 165 and 172 Tremont might be on the plant materials on the Boston Common. The assessment was done by first noting what species fall within the changing areas of shadow, then analyzing how much less direct sunlight specific specie groups would receive, and lastly by commenting on what the potential effects might be. Note that this summary does not assess the impact on specific trees; rather it focuses on specie groups which fall into the changing areas of shadow.

The results of the assessment are as follows:

From October to April the longer shadows will have no impact on the plant materials.

From May 1st to October 1st when the plant materials are producing food, the decrease in the amount of direct sunlight received may reduce food production capability. Over time the Elms and the Lindens may respond by becoming more open.

The reduced amount of direct sunlight may reduce the flowering and truiting potential of the crabapples.

All three types of turf identified tolerate varying degrees of shade. Different percentages of the listed turf were identified in different samples taken. The relative percentages of turf in a given area may change in response to the changing areas of shade, or in other words the type of turf most tolerant to the new conditions may become more predominant.

All the plants in question will receive only about 3 hours less direct sunlight per day and in most cases the amount of direct sun received per day will not fall below 5-6 hours. The impacts are judged to be minimal; there is no threat to the survival of any of the plant materials.

All of the trees listed, the Tilia species (Lindens), the Malus species (Crabapples), Sophora japonica (Pagoda Tree) and the Ulmus species (Elms) are among the best suited to withstand city conditions (poor soils, insufficient light, insufficient water, excessive smoke and dust and gas fumes in the air). Testimony to how well these particular species do in the city are those specimens of the same species which flourish in the shadow of existing buildings on this side of the Common.

Sincerely,

Lauri Webster Vice President

sure Webster

# June 88

# "MATERIAL IMPACT OF SHADOW ON THE PLANT LIFE ON BOSTON COMMON FOR 165 AND 172 TREMONT STREET".

Month	Time of Day	Plant Materials in existing shadow	Plant Materials In new shadow	Analysis
March	9:00 am	Common Lindens Crabappies English Elms Yews	Additional Common Lindens Additional English Eims Jersey Elms Holland Elms Lawn: Kentucky Bluegrass Perennial Ryegrass Annual Bluegrass	All listed deciduous plant materials are dormant at this time of the year.  The evergreen shrubs (Yews) tolerate partial shade.
	12:00 noon	No plant materials in shade	Common Lindens Crabappies Lawn (very small area)	The types of turf identified all tolerate varying
	3:00 pm	No plant materials In shade	No pient materials In shade	uegrees of strade. No impact.

Anatysis	All listed deciduous plant materials are dormant this time of year.  Evergreen shrubs (Yews) tolerate shade.	Turf is semi- dormant during winter months.	No impact.	
Plant Materials in new shadow		Scotch Elms Jersey Elms Lawn: Kentucky Bluegrass Perennial Ryegrass (negligible) Annual Bluegrass	Additional Common Linden English Elms Jersey Elms Lawn: Kentucky Bluegrass Perennial Ryegrass (negligible) Annual Bluegrass	No plant materials In shade
Piant Materiats In existing shadow	Common Linden Crabapples Yews English Elms Holland Elms Scotch Elms Jersey Elms Pagoda Trees Lawn:	Perennial Ryegrass (negligible) Annual Bluegrass	Common Linden Crabappies Yews Lawn: Kentucky Bluegrass Perennial Ryegrass (negligible) Annual Bluegrass	No plant materials in shade
Time of Day	9:00 am		12:00 noon	3:00 рт
Month	<b>Десетра</b>			

# References:

- "Schematic Design Submission" for 165 and 172 Tremont, Shadow Studles.
  - "Trees for American Gardens," by Donald Wyman Gary Koller, Managing Horticulturalist for the Arnold Arboretum (telephone
- conversation 6/30/88) 000
  - "Turigrass: Science and Culture," by James Beard

0

Analysis		sun will reduce tood production capability. Over time the large decidious trees may respond by becoming more	flowering and fruiting potential of the crabapples may be reduced.
Plant Materials In new shadow	Additional Common Lindens Additional English Elms Jersey Elms Holland Elms Scotch Elms Pagoda Trees Lawn: Kentucky Bluegrass Perennial Ryegrass Annual Bluegrass	Common Lindens Crabappies Yews Lawn: Kentucky Biuegrass Perennial Ryegrass(negligible) Annual Bluegrass	No plant materials In shade
Plant Materials in existing shadow	Common Lindens Crabapples English Elms Lawn: Kentucky Bluegrass Perennial Ryegrass (negligible) Annual Bluegrass	No plant materials in shade	No plant materials In shade
Time of Day	9:00 ат	12:00 noon	3:00 pm
Month	September		

Minimal Impact.

Analysis	Listed plant materials receive approximately 3 hours less direct sunlight per day; however by noon all plant material is in full sun.	From May 1st to October 1st trees	are producing food. The decrease in
Plant Materials In new shadow	Additional Common Lindens Additional Common Lindens Additional English Elms Jersey Elms Lawn: Kentucky Bluegrass Perennial Ryegrass (negligible) Annual Bluegrass	No plant materials In shade	No plant materials
Plant Materials In existing shadow	Common Lindens Crabappies English Eims Yews Seasonal Flowers	No plant materials In shade	No plant materials In shade
Time of Day	9:00 аш	12:00 noon	3:00 pm
Month	June		

October 1st trees are producing tood. The decrease in direct sun will reduce food production capability although not significantly. Over time the large deciduous frees may respond by becoming more open. The flowering and fruiting potential of the crabapples may be reduced.

The types of turt Identified all tolerate varying degrees of shade.

Minimal Impact.

Exhibit C



13 July 1988

Hall, Davison & Company 20 University Road Cambridge, MA 02138

Attention: Ms. Susan Price

Subject: Noise Impact of Rooftop Mechanical Rooms

165 Tremont Street on Tremont-on-the Common

### Dear Susan:

This letter communicates the findings of our noise analysis of the impact of rooftop mechanical equipment on the residential areas of Tremont-on-the-Common (TOC).

We have analyzed the impact of a Baltimore Aircoil (BAC) Series V cooling unit Model F1642-P as the leading candidate for the rooftop cooling unit at Parkside East. Attachment A shows that this unit will be located approximately 50 feet from the southwest wall of TOC. Noise data supplied by the manufacturer are shown in Attachment B. The criteria for the interior noise levels in living spaces are shown in Attachment C (from Beranek Noise and Vibration Control, McGraw Hill, 1971). These range from PNC 25 to 40. We have not evaluated the background noise at TOC or within any TOC residence, so we do not know whether or not the recommended criteria are even being met under existing conditions.

The manufacturer's noise data have been extrapolated to the nearest point on the TOC building, and approximate noise reduction of the building walls calculated. We assumed that the southwest wall of TOC is of concrete construction on the order

13 July 1988

of eight or more inches thick. Using this assumption, the calculated internal noise levels due to the Parkside cooling unit are very low, as shown in the lowest curve on Attachment D. However, the noise transmission through windows will be considerably greater than through the end wall of TOC. To check on a worst case scenario, we assumed that the TOC windows were actually at the location of the Southwest wall only 50 feet from the cooling unit (note that those more distant will be exposed to a lower noise level). Our calculations show that, even in this worst-case scenario, the interior noise levels would fall well below PNC 40, and would thus be acceptable to most residents. The impact on any residential unit on the northwest or southeast facing walls of TOC would be considerably less than that shown below because of; the reduction in noise level which occurs as one moves away from a noise source. For this analysis we have assumed that windows are closed and well sealed. Open windows would of course allow more noise to enter a particular living space, possibly causing the criteria to be exceeded. We also note that persons using balconies might be able to hear the cooling unit above the background noise.

A more detailed study of this issue could be done, but we do not believe that it is warranted, based upon the enclosed calculations.

Finally, we note that, if the noise impact of the Parkside mechanical units is ultimately found to be objectionable by a significant number of neighbors, solutions are readily avail- . able in the form of add-on noise attenuation devices.

Very Truly Yours,

TECHNOLOGY INTEGRATION AND DEVELOPMENT GROUP, INCORPORATED

Richard E. Hayden

President

President

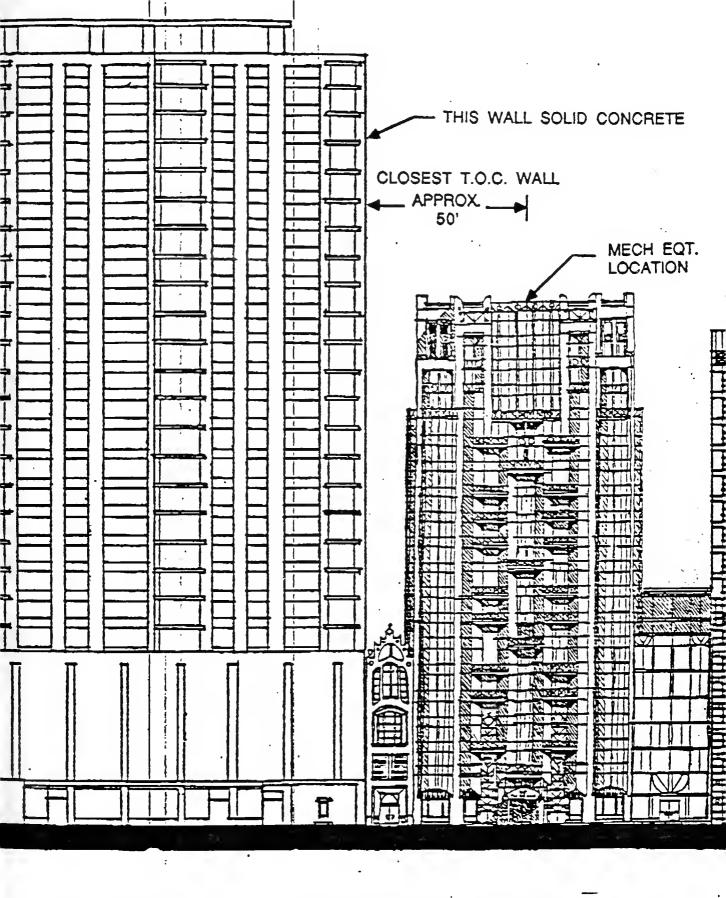
js



### Attachment A

LOCATION OF PARKSIDE ROOFTOP UNIT WITH RESPECT TO TREMONT-ON-THE-COMMON





ATTACHMENT A. LOCATION OF EQUIPMENT AND NEAREST T.O.C. WALL

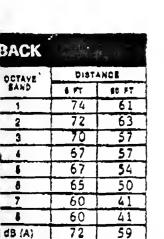


Sound Rating Data Sheet

MODEL NO.

F1452-P

Octave Band and A-Weighted Sound Pressure Levels (SPL) in dB RE 0.0002 Microbar for 5 ft and 50 ft Distances. Octave Band 1 refers to the 63Hz Center Frequency Band.



TOP			
DETAYE	DISTANCE		
BAND	8 87	\$0 FT	
1 1	78	63	
2	79	65	
3 1	78	64	
4	78	63	
5	77	62	
8 1	74	60	
7 i	71	. 56	
8 !	69	53	
dB (A)	82	67	

A TOTAL OF	isteria.		
DISTANCE			
8 PT	SO FT		
76	65		
	62		
71	58		
69	60		
	55		
	51		
	47		
55	41		
72	6)		
	76 72 71 69 68 63 60 55		

ND		
CTAVE	DIST	ANCE
BAND	\$ FT	SO ST
1	7.6	65
2	72	. 52
3	72	58
4	70	60
3	70	55
8	66	51
7	63	4.7
8	58	41
B (A)	74	61

ND		*
OCTAVE	DIST	ANCE
BAND	1 FT	10 ST
1	76	6.5
2	72	6.2
3	72	5.8
4	70	60
5	70	55
8	66	51
7	63	47
8	58	41
18 (A)	74	61

Calculated	Sound	Pawer Leve
(PWL) (n	dB RE	10" Watt.

SCTAVE SAND	S RE
1	97
2	96
3	94
4 1	93
8	91
6	89
7	85
В	RQ.

AIR INLET				
OCTAVE BAND	DISTANCE			
	\$ FT	74 04		
1	7.9	67		
2	76	67		
3	77	65		
4	76	63		
5	7.5	61		
8	74	60		
7	72	56		
8	67	50		
dB (A)	R1	67		

Attachment

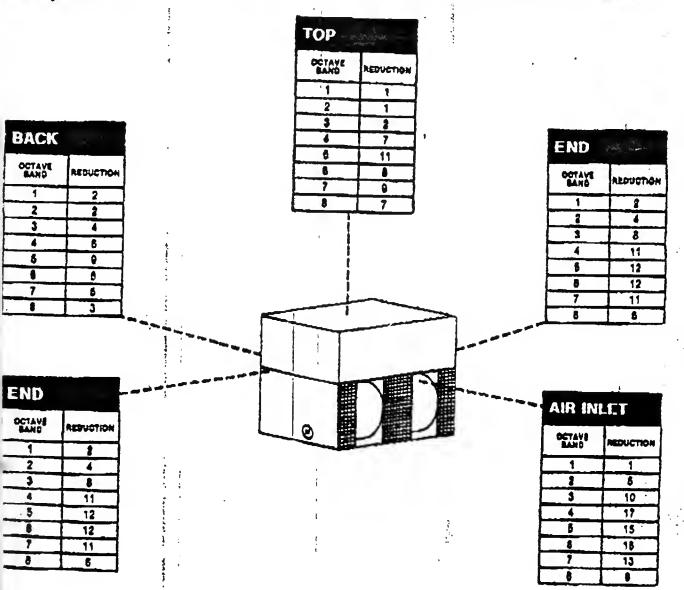
und Attonu

# Sound Attenuator Rating Sheet

All VX Equipment

Attenuation, by definition, is the weakening or lessening of a force, amount, or value. Therefore, the ratings provided here reduce radiated sound and are to be arithmetically subtracted from net unit sound pressure levels.

The attenuation ratings provided below are suitable for use at any distance normally encountered in cooling tower sound analyses. Since the attenuation effect varies with position around the tower, directional sound pressure level reductions are given which correspond to the sides of the tower illustrated in the diagram below.



ctave Bend Sound Pressure Level (SPL) Reduction in dB RE 0.0002 Microbar for B.A.C. Intako and ischarge Attenuation Package. Octave Band 1 refers to the 63Hz Center Frequency Band.

### Attachment C

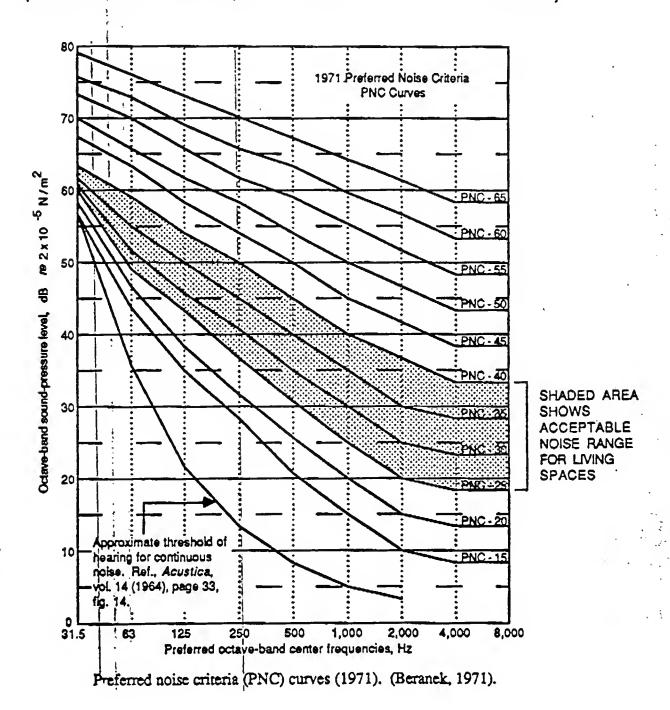
CRITERIA FOR INTERIOR NOISE IN LIVING SPACE



		*

### ATTACHMENT C.

BERANEK'S CRITERIA FOR ALLOWABLE
NOISE LEVELS IN LIVING SPACES
(OTHER EXPERTS ARGUE THAT PNC - 35 IS UPPER LIMIT)



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#### Attachment D

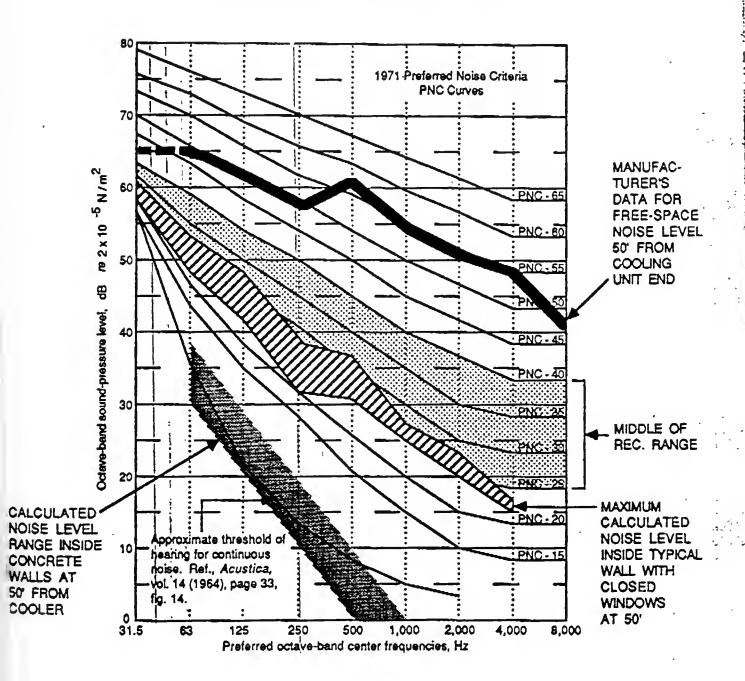
CALCULATED WORST-CASE IMPACT OF PARKSIDE EAST UNIT ON TREMONT-ON-THE-COMMON LIVING SPACES CLOSEST TO PARKSIDE



3

## ATTACHMENT D.

### CALCULATED NOISE LEVELS IN T.O.C. ASSUMING TWO TYPES OF POSSIBLE WALL CONSTRUCTION



# 165 and 172 Tremont Evaluation of Ambient Noise Levels

#### Introduction

This report evaluates the results of an analysis of the ambient noise levels at 165 and 172 Tremont Streets (the proposed Parkside East and Parkside at Mason Place projects) to determine their conformance with Design Noise Levels established by the U.S. Department of Housing and Urban Development.

The Noise Assessment Guidelines ("NAG") (see Exhibit 1) developed by the Department of Housing and Urban Development form the basis for this evaluation. Specifically, the projects' exposure to the sources of noise described below are evaluated in this study:

- (1) Aircraft noise
- (2) Railway noise
- (3) Roadway noise within 1000 feet, provided that:
  - (a) Adjusted Average daily automobile traffic is greater than 1000 vehicles.
  - (b) Adjusted Average daily heavy truck traffic is greater than 100 vehicles.

Exhibits 2 and 3 identify the location of the proposed Parkside projects situated in the block bounded by Tremont, Avery, Mason and West Streets and the circulation patterns for the roadways within the 1000 foot assessment area.

All four of the projects' border streets are one-way:

Street	Direction 1	ravel Lane	Parking
Tremont	Southbound	4	No parking
Avery	Eastbound	1	Both sides
Mason	Northbound	1	West side
West	Westbound	1	Both sides

Noise Assessment Locations ("NAL"), are those areas near the project site where significant noise is expected. NALs are established at 6.5 feet from the building facade. (See Exhibit 4).

#### Conclusions

This study assessed the impact on the Parkside site of three noise sources: air, rail, and automobile/truck traffic. Logan Airport and the area's two major commuter rails, located at North and South Stations, are well outside the applicable assessment range, and thus do not constitute a source of ambient noise. Major roadways within a 1000 foot radius of the site were evaluated to determine their contribution to ambient noise. Exhibits 6 and 7 suggest that while the ambient noise levels at the Parkside site are presently within

the normally unacceptable range (approximately 74.5 DNL), as that range is defined by the Department of Housing and Urban Development, analysis of present traffic patterns demonstrates that the primary source of that noise is heavy trucks and buses along Tremont Street. Moreover, the developers of Parkside have sought to assure that (1) the proposed project does not deleteriously affect the existing ambient noise levels and (2) that Parkside residents are sufficiently protected from undesirable outdoor noise. Their response, through building design, construction and other operating procedures, is described later in this study.

#### Avery, Mason and West Streets

While the study evaluated the noise generated at West Street (see Exhibit 6 and 7), the presence of the Tremont-on-the-Common structure, abutting the northside of the proposed projects and rising more than 50 feet above both them, serves to attenuate the effects on Parkside of noise generated on West Street.

The proximity of 172 Tremont to Avery Street called for evaluation of that roadway. Noise levels on Avery Street were found to be well-within the acceptable range. This is likely a result of the low volume of automobile and truck traffic and, specifically, the absence of heavy trucks and buses. 170 Tremont (Parkside West), in a fashion similar to Tremont-on-the-Common, serves to attenuate the impact at 165

Tremont of noise emanating from Avery Street.

Mason Street, which runs one-way northbound on the easterly side of the project site (parallel to Tremont Stret) generates approximately 54 vehicles during the peak evening hours (see supplementary comments to Transportation Study/Access Plan as provided by HMM Associates). While traffic counts for this roadway were not available, an average daily traffic count can be estimated by applying a peak-hour-to-total-traffic rate that can be inferred from Tremont Street traffic volumes (1500/20000 = 54/x = 720 ADT). At 720 vehicles per day, however, the adjusted average daily traffic count renders the noise level well below 55.

Traffic volume on Tremont Street, one of the City's major thoroughfares, was evaluated at a point mid-way between 165 and 172 Tremont. As Exhibits 6 and 7 suggest, traffic along Tremont Street consists of large numbers of slow-moving automobiles and light-weight vehicles and heavy trucks and buses. While noise generated from auto traffic is sigificantly lower than that from trucks/buses, the overall ambient noise level at the site reflects the impact of noise generated from truck and bus traffic.

#### Summary

As discussed above, ambient noise levels which impact the proposed Parkside projects and fall within the normally unacceptable range are generated along Tremont Street only.

Whereas residents with direct line-of-sight to the roadway are most exposed, it can be inferred from the research that the undesirable level of noise generated by large trucks and buses declines rapidly during the late evening and early morning hours -- those periods of time which are most likely to affect Parkside residents.

#### Mitigation Measures

The developers of Parkside have taken the following actions toward minimizing the effects of the noise levels as they presently exist:

- (1) Building design
- (2) Use of certain insulation, brick, stone materials
- (3) Windows
- (4) Parking Plan: The plan does not provide for parking spaces reserved for commercial use nor for use by shoppers; the purchase price for residential parking spaces discourages car ownership; and the provision of on-call car rental services serves as a disincentive to car ownership.
- (5) Retail shops: the nature of the proposed retail shops is such that clientele will consist most likely of Parkside residents or shoppers already in the area. Thus, retail use of the ground levels will not generate increased vehicular traffic.

#### Future Noise Levels

It is estimated that the proposed projects (see

Transportation Access Study prepared by HMM Associates) will generate a maximum of 46 vehicles during each of the peak traffic periods (i.e., 7:00-9:00 a.m. and 4:00-6:00 p.m.). Given that this is the worst-case level of Parkside-generated traffic expected during a 24-hour period, the study does not address future traffic-related noise levels at the site.

#### METHODOLOGY

#### Traffic Data

Traffic data was obtained from traffic counts conducted by Traffic Control Systems for the City of Boston (see attached Addenda).

- o In those instances where traffic data was generated prior to 1986, an annual growth factor of 6.5% is consistently applied to traffic counts for all roadways in the assessment area.
- o In general, traffic movement data reflects counts taken for 11-hour intervals. 24-hour counts (Average Daily Traffic - "ADT") are calculated using a factor of 1.15-1.20.
- The composition/mix of traffic as identified in Exhibit 5 and is consistently applied to all streets within the assessment area, and is based on observations identified in the attached Addenda.

#### Other Assumptions

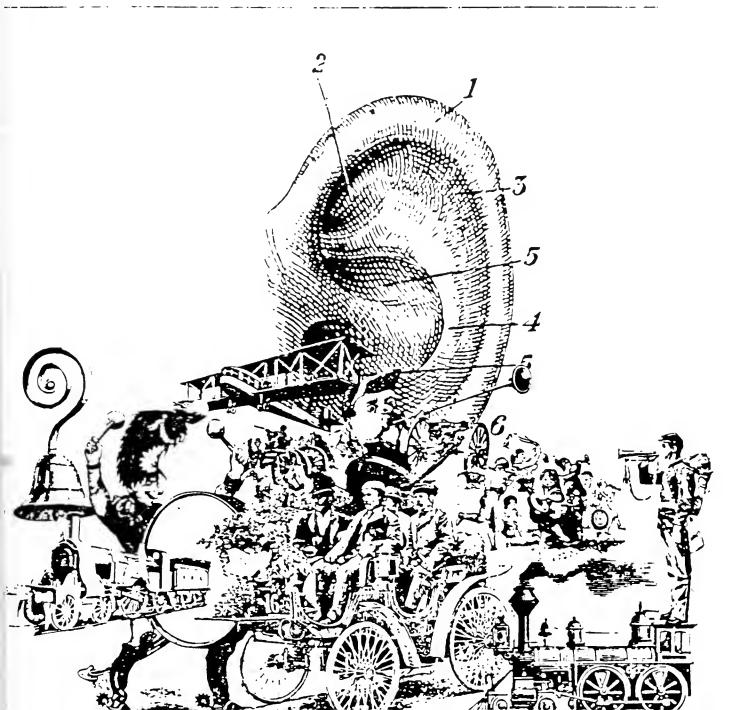
- (1) Average speed
  - o (automobiles): 25 mph
  - o (heavy trucks): less than 50 mph
- (2) Night-time traffic
  - o (autos): 15% of ADT

- o (heavy trucks): 1%
- (3) Street gradients zero.
- (4) Total noise level is calculated for Tremont Street based on a combination of automobile traffic and truck traffic decibel levels using Table 1 of NAG.



#### Exhibit 1

# Noise Assessment Guidelines



#### rroduction

rese guidelines are presented as part of a actinuing effort by the Department of Housn and Urban Development to provide the ent housing and a suitable living enrinment for all Americans

he procedures described here have been keloped so that people without technical raing will be able to assess the exposure of susing site to present and future noise editions. In this context, the site may hold or one small building, in which case the icle assessment is straightforward. Larger its may hold larger buildings, or many oldings, and the noise level may be dife nt at different parts of the site (or buildni. Assessments of the noise exposure tuid be made at representative locations ar and the site where significant noise is exected These are designated as "Noise Asessment Locations," abbreviated NAL in hilollowing text.

ne only materials required are a map of harea, a ruler (straight edge), a protractor ar a pencil. Worksheets and working ig es are provided separately

If of the information you need can be ally obtained – usually by telephone. For covenience, this information is listed at the penning of each section under headings he indicate the most likely source. While to are obtaining this information, be sure to is about any approved plans for future thinges that may affect noise levels at the lift – for example, land-use changes, thinges in airport runway traffic, widening of oils, and so forth. In all evaluations, you

should assess the condition that will have the most severe or most lasting effect on the use of the site

Wherever possible, you should try to assess noise environments expected at least ten years in the future

The degree of acceptability of the noise environment at a site is determined by the outdoor day-night average sound level (DNL) in decibels (dB). The assessment of site acceptability is presented first as an evaluation of the site's exposure to three major sources of noise – Aircraft, Roadways, and Railways. These are then combined to assess the total noise at a site. Worksheets are provided at the back of these Guidelines to use in summarizing your evaluations.

The noise environment at a site will come under one of three categories:

Acceptable (DNL not exceeding 65 decibels) The noise exposure may be of some concern but common building constructions will make the indoor environment acceptable and the outdoor environment will be reasonably pleasant for recreation and play.

Normally Unacceptable (DNL above 65 but not exceeding 75 decibels) The noise exposure is significantly more severe; barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable; special building constructions may be necessary to ensure that people indoors are sufficiently protected from outdoor noise

Unacceptable (DNL above 75 decibets) The noise exposure at the site is so severe that the construction cost to make the indoor

noise environment acceptable may be prohibitive and the outdoor environment would still be unacceptable.

When measuring the distance from the site to any noise source, measure from the source to the nearest points on the site where buildings having noise-sensitive uses are tocated. These points define the Noise Assessment Locations for the site. The relevant measurement location for buildings a point 2 meters (6.5 feet) from the facade.

If at any point during the assessment the site's exposure to noise is found to be Unacceptable or Normally Unacceptable, every effort should be made to improve the condition, e.g., the location of the proposed dwellings can be changed or some shielding can be provided to block the noise from that source.

Where quiet outdoor space is desired at a site, distances should be measured from the important noise sources to the outdoor area in question and the combined noise exposure should be assessed.

Frequently, the locations of dwellings have not yet been specified at the time the noise assessment of a site is made. In these instances, distances used in the noise assessment should be measured as 2 meters less than the distance from the building setback line to the major sources of noise

#### ombining Sound Levels in Decibels

le noise environment at a site is deterned by combining the contributions of difent noise sources. In these guidelines britcharts are provided to estimate the conbution of aircraft, automobile, truck, and in noise to the total day-night average and level (DNL) at a site. The DNL contritions from each source are expressed in tribels and entered on Worksheet A. The inbined DNL from all the sources is the CL for the site and is the value used to dermine the acceptability of the noise vironment.

Sound levels in decibels are not combined as imple addition! The following table towns how to combine sound levels:

Use the table by first finding the numerical difference in sound fevel between two levels being combined. Entering the table with this value, find the value to be added to the larger of the two levels, add this value to the larger level to determine the total. Where more than two levels are to be combined use the same procedure to combine any two levels, than use this subtotal and combine it with any other level, and so on. Fractional numerical values may be interpolated from the table; however, the final result should be rounded to the nearest whole number.

) le	
) erenc <b>e in</b> Sund Level	Add to Larger Level
J. 10 2010.	3 0 2 5 2 1 1 8 1 5 1 2 1 0 0 8
l    -     aler than 16	0 6 0 5 0 4 0 3 0 2 0 1

t) separate DNL values for airports, road tific, and railroads have been listed on Vorksheel A as 56, 63, and 61 decibels. In cler to complete the final evaluation of the 53, these separate DNL values must be embined. The difference between 63 and 5 is 7; from the table you find that 0.8 should t added to 63, for a subtotal of 63.8. The cference between 63 8 and 61 is 2 8, from le table you interpolate that approximately i) should be added to 63.8 for a total of 65.7. 66 dB when rounded to whole numbers iis example shows how noise from different Surces may be Acceptable individually at a te, but when combined the total noise enconment may exceed the Acceptable DNL lut of 65 decibets

Eample 1: In performing a site evaluation,

#### Roadways

#### Necessary Information

To evaluate a site s exposure to roadway noise, you will need to consider all roads that might contribute to the site s noise environment, roads farther away than 1000 feet normally may be ignored.

Before beginning the evaluation, determine if roadway noise predictions already exist for roads near the site. Also try to obtain all available information about approved plans for roadway changes (e.g., widening existing roads or building new roads) and about expected changes in road traffic (e.g. will the traffic on this road increase or decrease in the next 10 to 15 years)

If this information exists, it should be available from the City (County) Highway or Fransportation Department. If not record the ollowing information on page 1 of Norksheet C.

- The distances from the NAL's for the site to he near edge of the nearest lane and the far edge of the fanhest lane for each road.
- Distance to stop signs
- Road gradient il 2 percent or greater.
   Average speed
- The total number of automobiles for both lirections during an average 24-hour day raffic engineers refer to this as ADT, Average Daily Traffic (or sometimes AADT, neaning Annual Average Daily Traffic)
- The number of trucks during an average
- 14-hour day in each direction.

If possible separate trucks into "heavy rucks" – those weighing more than 26,000 founds with three or more axles – and medium trucks" – those between 10,000 and 26,000 pounds a Each medium truck is ounted as equal to 10 automobiles.) Trucks inder 10,000 pounds are counted as autohobiles. Count buses capable of carrying fore than 15 seated passengers as "heavy" ucks – others, as "medium" trucks. If it is

not possible to separate the trucks into those that are heavy and those that are not, treat all trucks as though they are "heavy."

Note: If the road has a gradient of 2 percent of more, record the numbers for uphill and downhill traffic separately since these figures will be needed later; otherwise, simply record the total number of trucks. Most often you will have to assume that the uphill and downhill traffic are equally split.

• The fraction of ADT that occurs dumn nighttime (10 pm to 7 a fs.) If this is

antopwn: assume 0-15 for both trucks and autos

# Evauation of Site Exposure to Roadway Noise

Traffic surveys show that the amount of roadway noise depends on the percentage of trucks in the total traffic volume. To account for this effect, you must evaluate automobile and truck traffic separately and then combine the results

The noise environment at each site due to traffic noise is determined by utilizing a series of Workcharts to define the contribution of automobiles and trucks from one or more roads at that site. Each noise source yields a separate DNL value.

Workchart provides a graph for assessing a site with respect to the noise from automobiles, light and medium trucks. Workchard provides a similar graph for assessment of heavy truck noise. These values are combined for each road affecting the noise environment at the site to obtain the total contribution of roadway noise. Remember, the noise from aircraft and railways must also be considered before determining the suitability of this site's noise environment.

Effective Distance

Before proceeding with these separate eval-

uations, however, determine the "effective distance" to each road from the dwelling or outdoor residential activity (the NAL's for the site) by averaging the distances to the nearest edge of the nearest lane and to the tanhest edge of the farthest lane of traffic (See Example 5, page 6, and Figure 4, page 7) Note: For roads with the same number of lanes in both directions, the effective distance is the distance to the center of the roadway (or median stop, if present)

#### **Automobile Traffic**

Workchart 1 was derived with the following assumptions

- There is line-of-sight exposure from the site to the road, i.e., there is no barrier which effectively shields the site from the noise of the road.
- There is no stop sign within 600 feet of the site, traffic lights do not count because there is usually traffic moving on one street or the other
- The average automobile traffic speek is 55 mph
- The nighttime fraction of AD is 0 15
  If each road meets these four conditions, proceed to Workchart 1 for the evaluation Enter the horizontal axis with the effective distance from the roadway to the NAL; draw a vertical line upward from this point. Enter the vertical axis with the effective automobile ADT, draw a horizontal line across from this point. (The "effective" automobile ADT is the sum of automobile, light truck, and 10 times the number of medium trucks in a 24-hour day.) Read the DNL value from Workchart 1 where the vertical and horizontal lines intersect. Record this value in column 16. Worksheet C.

But:

If any of the four conditions is different, make

Example 5: The site shown in Figure 4 is exposed to noise from three major roads: Road No. 1 has four lanes, each 12 feet wide, and a 30-foot wide median strip which accommodates a railroad track. Road No. 2 has four lanes, each 12 feet wide. Road No. 3 has six lanes, each 15 feet wide, and a median strip 30 feet wide.

The distance from NAL No. 1 to the near edge of Road No. 1 is 300 feet. The distance

to the far edge of Road No. 1 is 300 feet, plus the number of lanes times the lane width, plus the width of the median strip. Thus, the distance to the farthest edge of the road is

$$300 + (4 \times 12) = 378 \, \text{ft}$$

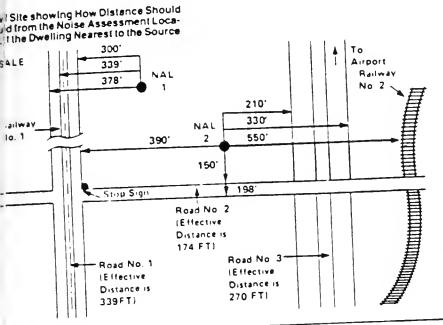
The effective distance is

$$378 \pm 300 = 339 \, \pi$$

2

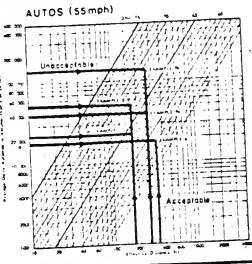
This is the value to be entered on line 1c of Worksheet C. The effective distances from the appropriate NAL's to Road No. 2 and Road No. 3 are found by the same method

The distances shown in Figure 4 will be used for all roadway examples in this booklet



cssary adjustments (on page 2. let C) listed below and then use that I for the final evaluation ti lew general words about adjustis they are applied in these Guide-Ech Workchart has been derived for a il-condition which is often found in cleases. Where conditions differ from aline, they are accounted for by a stone or more adjustment factors eidjustment factors are used as mulrimes the average number of vehicles ang during a 24-hour day if more than austment is required it is not necestat each be multiplied times the basic cow separately, all adjustment factors titiplied together, and them multiplied she original traffic flow data. This will e clearer as you examine the Worke at the back of these Guidelines and

Figure 5
Use of Workchart 1 To Evaluate Automobile
Traffic Noise



work through the examples. After you have become familiar with the Guidelines, you will be able to work examples directly from the worksheets without referring back to the text. To simplify your work, all the adjustment factors are summarized at the back of these Guidelines.

## Adjustments for Automobile Traffig

Stop-and-Go Traffic:

If there is a stop sign (not a traffic signal) within 600 feet of the NAL so that the flow of traffic is completely interrupted on the road under consideration, find the stop-and-go adjustment factor for automobiles from Table 3. Enter this value in column 9 on Worksheet C.

Table 3 Distance from NAL to Stop Sign to Feet	Automobile Stop-and-Go Adjustment Factor
0 100 200 300 400 500	0 10 0 25 0 40 0 55 0 70 0 85 1 00

Average Traffic Speed:

If the average automobile speed is otherwar. 55 mph, enter the appropriate adjustment from Table 4 in column 10 of Worksheet C.

Table 4       Average     Auto Speed       Traffic Speed     Adjustment Factor       20 (mph)     0 13       25     0 21       30     0 30       35     0 40       40     0 53       45     0 67       50     0 83       55     1 00       60     1 19       65     1 62		
25 0 21 30 0 30 35 0 40 40 0 53 45 0 67 50 0 83 55 1 00 60 1 19 65 1 40	Average	Auto Speed Adjustment Factor
	25 30 35 40 45 50 60 65	0 21 0 30 0 40 0 53 0 67 0 83 1 00 1 19 1 40

fole 6: Road No. 1 meets the four condistat allow for an immediate evaluation.

It inning the information necessary for
aluation, it was found that the autobit ADT is 18,000 vehicles (Line 5c of
riheet C). On Workchart 1 we locate on
ritical scale the point representing
(0 and on the horizontal scale the point
oisenting 339 feet (see Figure 5). (Note
are must estimate the location of this.

I, ) Using a straight edge we draw lines to irect these two values and find that the exposure to automobile noise from this as a DNL of 58 dB as read from the scale

13 top of the graph.

Example 7: Road No. 2 has a stop sign at 390 feet from NAL No. 2. The automobile ADT is reported as being 32,500 vehicles (line 5c of Worksheet C). From Table 3 we interpolate between 300 and 400 feet to find the adjustment factor for stop-and-go traffic to be 0.69. The adjusted traffic ADT is

 $0.69 \times 32.500 = 22.425$  vehicles per day

and with an effective distance of 174 feet from NAL No. 2, we find from Workchart 1 that the approximate value of DNL is 64 dB. Example 8: Suppose that the stop sign on Road No. 2 were replaced by a traffic signal for which no stop-and-go adjustment is made and that the ADT increases to 75,000 vehicles. In addition, assume that the average speed is 45 mph instead of 55 mph. You adjust the new automobile ADT of 75,000 vehicles by the Auto Speed Adjustment Factor from Table 4

0.67 × 75,000 = 50,250 vehicles

and at an effective distance of 174 feet find from Workchart 1 that the approximate value of DNL is 67 dB.

htime Adjustment.

Livalues are affected by the proportion of fic volume that occurs during "daytime" (7 to 10 p.m.) and "nighttime" (10 p.m. to 7). The graph on Workchart 1 assumes in 15 percent of the total ADT occurs during intime. If a different propriation of the traffic curs at night, find the appropriate nighttime custment factor from Table 5. Record your twer in column 11 of Worksheet C.

1 le 5	•
intime rition I DT	Nighttime Adjustment Factor
	0 43 0 46 0 50 0 62 0 81 1 00 1 19 1 38 1 57 1 77 1 96 2 15 2 34

he you have selected all the appropriate c.stment factors and entered them on ae 2 of Worksheet C multiply all the ors together, then multiply by the autoibile ADT (column 12) for 24 hours, found rrage 1 of Worksheet C. The resulting cisted ADT should be entered in column This is the ADT value to be used in clunction with the effective distance from NAL to the road, to find the DNL value () Workchart 1. Enter this DNL value in cmn 14 of Worksheet C. Remember this is PDNL from automobile (as well as light and frum truck) noise, you must still find the I. contribution from heavy truck noise in rer to obtain the total DNL produced by the ) Iway you are assessing

Attenuation of Noise by Barriers:

This adjustment reduces the noise produced by automobiles and trucks on the same road instructions for this adjustment appear after the noise assessment for truck traffic below.

#### Truck Traffic

Wherever possible, separate the average daily volume of trucks into heavy trucks (more than 26 000 pounds vehicle weight and three or more axles); medium trucks (less than 26,000 pounds but greater than 10,000 pounds), light trucks (counted as if they are automobiles). You should already have accounted for medium and light trucks in your automobile evaluation. Do not lorget buses that can carry more than 15 seated passengers are counted as heavy trucks Heavy trucks (including buses) must be analyzed separately because they have quite different noise characteristics. If it is not possible to separate the trucks into those that are heavy and those that are not, treat all trucks as though they are "heavy"

Workchart 2 which is used to evaluate the site's exposure to heavy truck noise, was derived with the following assumptions:

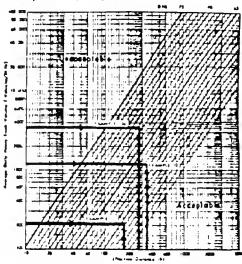
- There is line-of-sight exposure from the site to the road, i.e., there is no barner which effectively shields the site from the road noise.
- The road gradient is less than 2 percent.
- There is no stop sign (traffic signals are permissible) within 600 feet of the site
- The average truck traffic speed is 55 mph.
- The nighttime fraction of ADT is 0.15.
   If the road meets these tive conditions, proceed to Workchart 2 for an immediate evaluation of the site's exposure to heavy

But:
If any of the conditions is different, make the

necessary adjustment(s) listed below and then use Workchart 2 for the evaluation

Figure 6.
Use of Workchart 2 to
Evaluate Heavy Truck Noise

Heavy Trucks (55 mph)



#### Adjustments for Heavy Trucks

Road Gradient:

If there is a gradient of 2 percent or more find, the appropriate adjustment factor, for heavy trucks going uphill only, as shown in Table 6. List this factor in column 17 of Worksheet C.

Table 6	
Percent of	Adjustment
Gradient	Factor
2	1 4
3	1 7
4	2 0
5	2 3
6 or more	2 5

Imple 9a: Road No 3 is a limited access way with no stop signs and the average ped is 55 mph. Current traffic data indicate rutomobile ADT of 40,000 vehicles of this percent occurs during nighttime cs (10 p.m. to 7 a.m.). With an effective it ince of 270 feet to NAL No. 2, Workchart i used to show that the DNL for existing if mobile traffic is between 63 and 64 dB and off to 64 dB.

**Example 9b:** However, traffic projections estimate that in 10 years the ADT will increase to 100,000 vehicles at an average speed of 55 mph and nighttime usage will increase to 25 percent. For future traffic, you must adjust the future ADT of 100,000 for the effect of increased nighttime use. From Table 5, you find an adjustment factor of 1.38. The adjusted ADT is

 $1.38 \times 100,000 = 138,000$ 

truck noise from that road.

and at an effective distance of 270 feet you find from Workchart 1 that the DNL will increase to 69 dB; therefore, provision for extra noise control measures should be explored. We will examine in Example 13 the effect of terrain as a shielding barrier that provides sound attenuation.

Example 10: Road No. 1 on Figure 4 meets the four conditions that allow for an immediate evaluation. The ADT for heavy truck flow is 1200 vehicles. With an effective distance of 339 feet, Workchart 2 shows that the exposure to truck noise from this road is a DNL of 63 dB at NAL No. 1.

#### ge Traffic Speed:

k this adjustment if the average speed effrom 55 mph. If the average truck differs with direction, treat the uphill downhill traffic separately. Select the prinate adjustment factors from Table 70, entering them in column 18 of Workset C.

117	
r je Traffic	Heavy Truck
€ H	Speed Adjustment
H	Factor
DIESS	0 81
1	1 00
	1 17
	1 38

):e you have found the speed adjustr'actor, you can combine the uphill and wall traffic. For uphill traffic, multiply the cent factor times the speed adjustment ti times uphill traffic volume (truck ADT uin 19) (assuming one-half the total 24-Diverage number of trucks unless eric information to the contrary exists), eng the product in column 20. Multiply peed adjustment factor for downhill If times the downhill traffic volume (truck 12 column 19) Add the values for uphill downhill traffic, entering this sum in Lin 21. You may now complete the sisment of heavy truck noise without ed to uphill and downhill traffic

#### o, and-Go Traffic:

pration.

hie is a stop sign (remember, not a traffic grl) within 600 feet of an NAL for the site ite road being assessed, find the adjuste factor determined according to Table 8, it in Column 22 of Worksheet C

# Table 8 Heavy Truck Heavy Truck Traffic Volume Stop-and-Go per Day Adjustment Factor Less than 1200 1 8 1201 to 2400 2 0 2401 to 4800 2 3 4801 to 9600 2 8

#### Nighttime Adjustment

9601 to 19 200

More than 19,200

After all the above adjustments are made, do not forget to adjust for nighttime operations if they are not 15 nercent of the total ADT, using the factors obtained from 1 able 5 just as for automobiles. Enter this value in column 23 of Worksheet C.

38

4.5

At this point, multiply the adjustment factors for nighttime and stop-and-go traffic times the heavy truck traffic volume in column 21 to find the adjusted heavy truck ADT, entering the product in column 24. Use this value and the effective distance from the NAL to the road to find the truck DNL from Workchart 2, entening your answer in column 25 of Worksheet C. If no shielding barriers are to be considered, combine the DNL from heavy trucks with the DNL from automobiles (column 14). The result is the DNL from the road being assessed and should be entered on Worksheet C.

#### But:

If a shielding barrier is to be considered for the site, make the analysis described below separately for automobiles and then for heavy trucks before combining the DNL values. This step is necessary since barriers are far more effective for automobiles than for heavy trucks. Once you have found the amount of attenuation provided by the barrier for automobiles, enter it in column 15. Find the value of barrier attenuation for heavy

trucks and enter it in column 25. Subtract these attenuation values from the DNL values obtained previously (column 14 and 24), entering the reduced DNL values in the appropriate columns 16 and 27. Combine the automobile and heavy truck DNL values, reduced by the attenuation provided by the barrier to find the final DNL produced by the roadway at the site.

Remember to combine the contributions to DNL of all roads that affect the noise environment at each NAL for the site to obtain the total DNL from all roadways. Enter this DNL on both Worksheet C and the summary Worksheet A.

#### Attenuation of Noise by Barriers

Noise barriers are useful for shielding sensitive locations from ground level noise sources. For example, a barrier may be the best way to deal with housing sites at which the noise exposure is not acceptable because of nearby roadway traffic.

A barner may be formed by the road profile, by a solid wall or embankment, by a continuous row of noise-sensitive buildings, or by the terrain itself. To be an effective shield, however, the barner must block all residential levels from line or sight to the road; it must not have any gaps that would allow noise to leak through.

#### Some Preliminary Matters:

In evaluating noise barrier performance, you will be working with different kinds of "distances" between the sound source, the observer, and the barrier.

Actual Distance – the existing distance that would be measured using a tape measure with no corrections or adjustments. This may mean one of two things, depending on the application; either the:

slant distance – the actual distance,

x nple 11: Road No 2 has a stop sign at determined electrom NAL No 2. There is also a road reient of 4 percent. No heavy trucks are lived on this road, but a schedule shows in verage of 12 large buses pass along the per hour between 7 a.m. and 10 p.m., thigh no buses are scheduled during the arange nightime period. The buses are cally divided in each direction along the period. (Remember large buses, those that a vover 15 seated passengers, count as evy trucks.)

Vind the ADT for the "heavy trucks" (the ites in this case) by multiplying the average it ber of vehicles per hour by the number of ites between 7 a.m. and 10 p.m. That is, 12 = 180, or 90 vehicles in each direction

Vind from Table 6 that the gradient adjust-

ment factor for uphill traffic is 2.0. We find the truck volume adjusted for gradient is

 uphill:
 90 x 2.0 = 180

 downhill:
 = 90

 total (column 21)
 = 270 vehicles

From Table 8, we find the adjustment factor for stop-and-go traffic to be 1.8.

We also remember that we have no buses in the nighttime period and find the factor in Table 5 on page 8 for zero nighttime operations to be 0.43

Our final adjusted ADT is (column 24)

 $1.8 \times 0.43 \times 270 = 209$  Vehicles

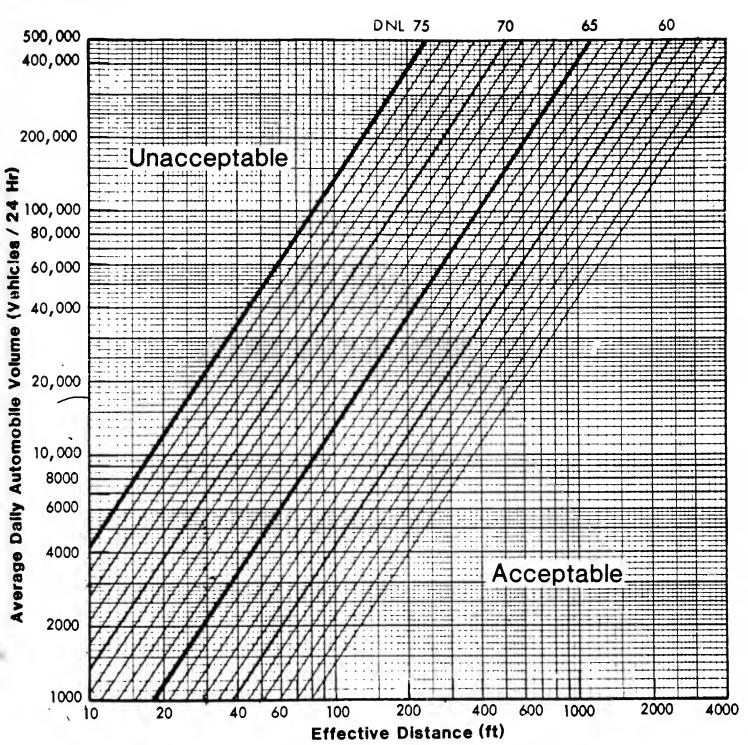
From Workchart 2, with an effective distance of 174 leet, we find a DNL of 59 dB.

Example 12a: Road No. 3 is a depressed highway and the profile shields all residential levels of the housing from line of sight to the traffic. The average truck speed is 50 mph. The ADT for heavy trucks is 4400 vehicles. We adjust for average speed (from Table 7).

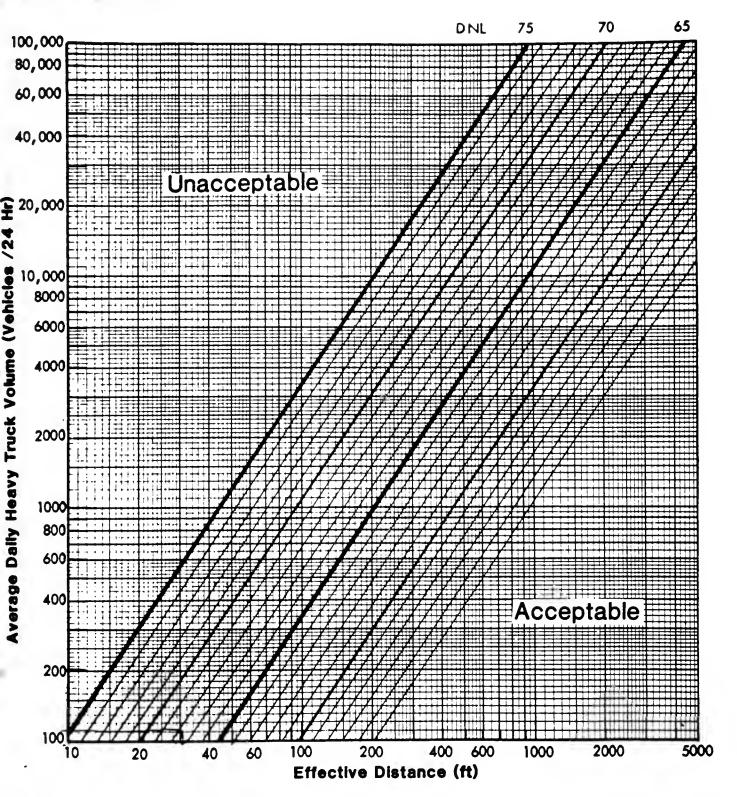
 $4400 \times 0.81 = 3564$ 

and find from Workchart 2 that, with an effective distance of 270 feet, the DNL from truck noise would be 69 dB if no barrier existed. We proceed to analyze the barrier attenuation.





Workehart 2 Heavy Trucks (55 mph)

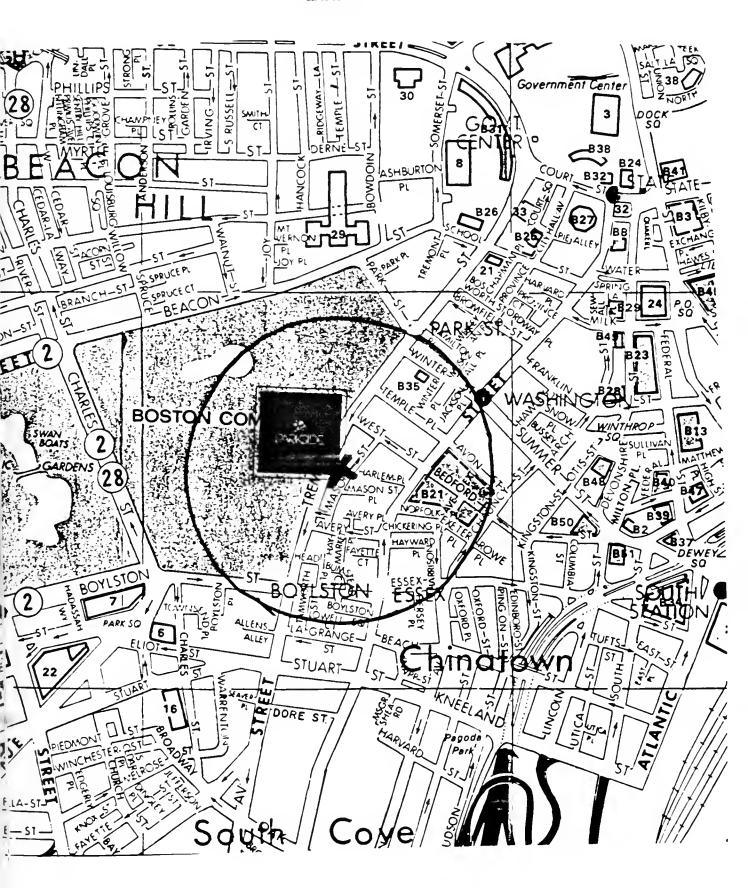


orksheet A te Evaluation			Noise Assessment Guidelines	
te EABINGTION				`,
Location				_
gram				
ject Name	· · · · · · · · · · · · · · · · · · ·			
			<u> </u>	_
airty				
Number				
			Phone	
onsor's Name			Phone	
eet Address			City, State	
Acceptability		Predicted for		
Category	DNL	Operations in Year		
Roadway Noise				
Aircraft Noise			_	
Railway Noise			_	
ilue of DNL for all noise sources: (see page 3 for mbination procedure)				
nal Site Evaluation (circle one)				
ceptable				
ormally Unacceptable				
pacceptable				
ignature			Date	

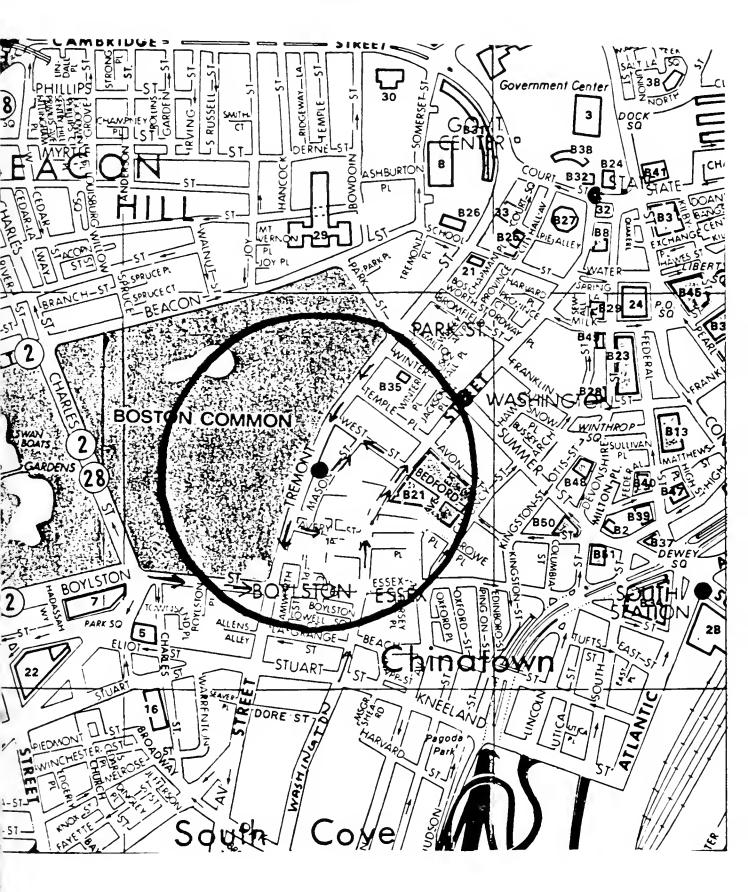
lip this worksheet to the top of a package ontaining Worksheets B-E and Workcharts 1-7 hat are used in the site evaluations

Norksheet C Roadway Noise	Page 1				Noise Assessment Guidelines
ist all major roads within 1000 ft of the site:	<u></u>			<del></del>	
1		<del></del>	<del></del>		
<u> </u>		_			
3					
J					
lecessary information	Road 1	Road 2	Road 3	Road 4	
Distance in feet from the NAL to the edge of the road					
a. nearest lane					
b. farthest lane				<del></del>	
c. average (effective distance)		-		· <del></del>	
2. Distance to stop sign					
d. Road gradient in percent					
1. Average speed in mph					
a. Automobiles					
b. heavy trucks - uphill			_		
c. heavy trucks - downhill				- <del></del>	
5. 24 hour average number of automobiles					
and medium trucks in both directions (ADT)  a. automobiles		-			
b. medium trucks					
c. effective ADT (a + (10xb))				·	
6. 24 hour average number of heavy trucks					
a. uphill					
b. downhill			_		
c. total		- <del></del>			
7. Fraction of nighttime traffic (10:00 p.m. to 7: a.m.)					
B. Traffic projected for what year?		· <del></del>	-		

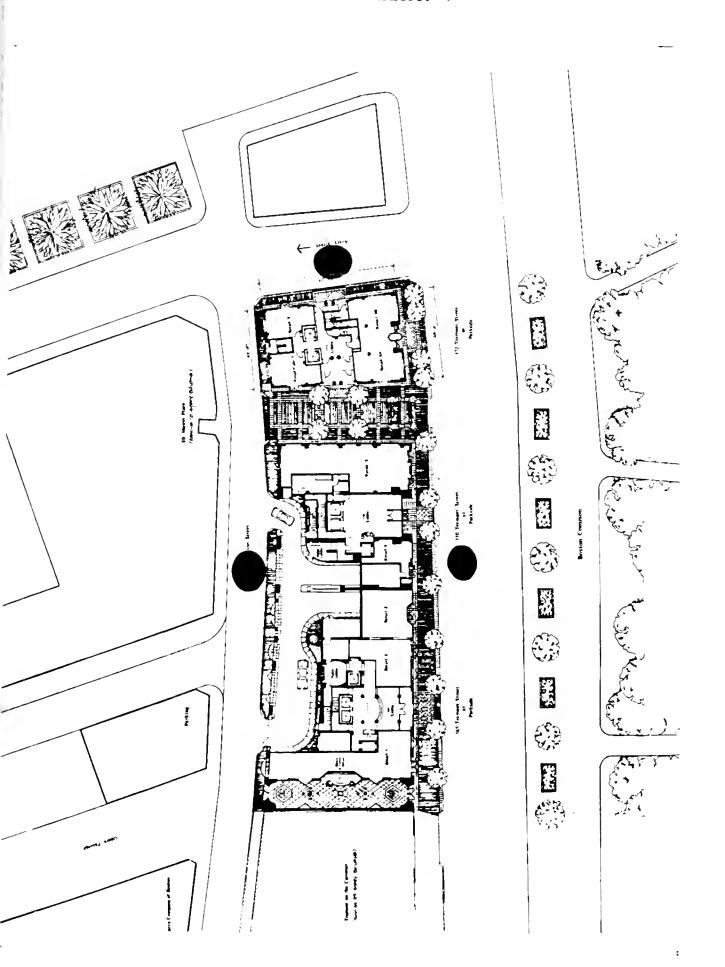
	Stop and-go Table 3	10 Average Speed Table 4	11 Nigh Time Tabi		12 Auto ADT (line 5c)	Adjusted Auto ADT	DNL (Workchart 1)	15 Barrier Attenuation	16 Partial DNL
load No. 1		x	x		x	_ =			=
load No. 2	<del></del>	x	x		. x				=
load No. 3	<del></del>	x	x		x	_ =		. <del>-</del> . <u></u>	_ =
load No. 4		x	x		x	_ =			=
djustments	for Heavy 1	Fruck Traffic					-		
		8 19 sverage Truck peed <u>ADT</u> able 7 2	20	21	22 Stop and-go Table		Adjusted Truck	DNL (Work E	Sarrier Partial Attn. DNL
Uphill	x_	x	=	_					
oad No. 1				Add _	_ x	x	=		=
Downhill	-	x	=	_					
Uphill	x_	×	. =	_					
oad No. 2				Add	_ x	x	_ =		=
Downhill	_	x	=	_					
Uphill	x_	x	=	<del></del>					
oad No. 3				Add	x	x	=		=
Downhill	_	x	=	_					
Uphill	x_	×	. =	_					
load No. 4				Add _	_ ×	x	=		=
Downhill	-	x	- <del>-</del>	_					
ombined A	utomobile &	Heavy Truck	DNL				-	<del></del>	
load No. 1	Ac	oed No. 2	Ro	ad No. 3 .	R	oad No. 4	Total DN		



Scale: 1/8" = 82.5"



Scale: 1/8 = 82.5



## Exhibit 5

## Traffic Composition\*

Vehicle Classification	As % of Total Vehicles
Automobile**	
Passenger	71.5%
Taxi	15.2%
Light truck/pick-up single rear tires and axle	4.2%
Medium truck - dual rear tires/single rear axle	4.1%
Heavy Truck**	
Heavy truck/semi-trailer dual rear axles	.8%
Bus	4.2%

<sup>\*</sup> Traffic Composition derived from Intersection Turning Movement Count conducted by Traffic Control Systems for City of Boston, at Tremont and Winter Streets 6/80.

<sup>\*\*</sup> Vehicle classification as defined by HUD Noise Assessment Guidelines.

Automobile Traffic Worksheet

			3	(8)		(0)	(D)	(E)	(F)	(9)
Roadkay	Traffic Count (Actual)	Traffic Projected Count Count (Actual) 1988*	Autos	Medium Trucks	Heavy	Effective Auto ADT	Speed Adjustment Factor	Adjusted Auto ADT	Noise Assessment Location	Decibel Noise Level (DNL)
Tremont Street	12118	20000	18200	820	1000	26400	0.21	2544	WAL 1 - 28.5'	69
Avery Street	554	860	782	35	43	1132	0.21	238	NAL 2 - 20'	Adjusted ADT less than 1000 vehicles
West Street	2876	3940	3585	162	197	5205	0.21	1093	NAL - 0250	less than 55
Washington Street		0009	2460	546	300	7920	0.21	1663	NAL 3 - 2400"	Less than 55

Based on 6.5% annual growth rate

(A): Exhibit 5 · Traffic Composition
(B): Exhibit 5 · Traffic Composition
(C): Exhibit 1 · Page 6 [C= (A) + 10(B)]
(D): Exhibit 1 · Page 7, Table 4
(E): (C)x(0)
(F): Exhibit 1 · Page 6: Distance of NAL to assessed roadway
(G): Exhibit 1 · Workchart 1

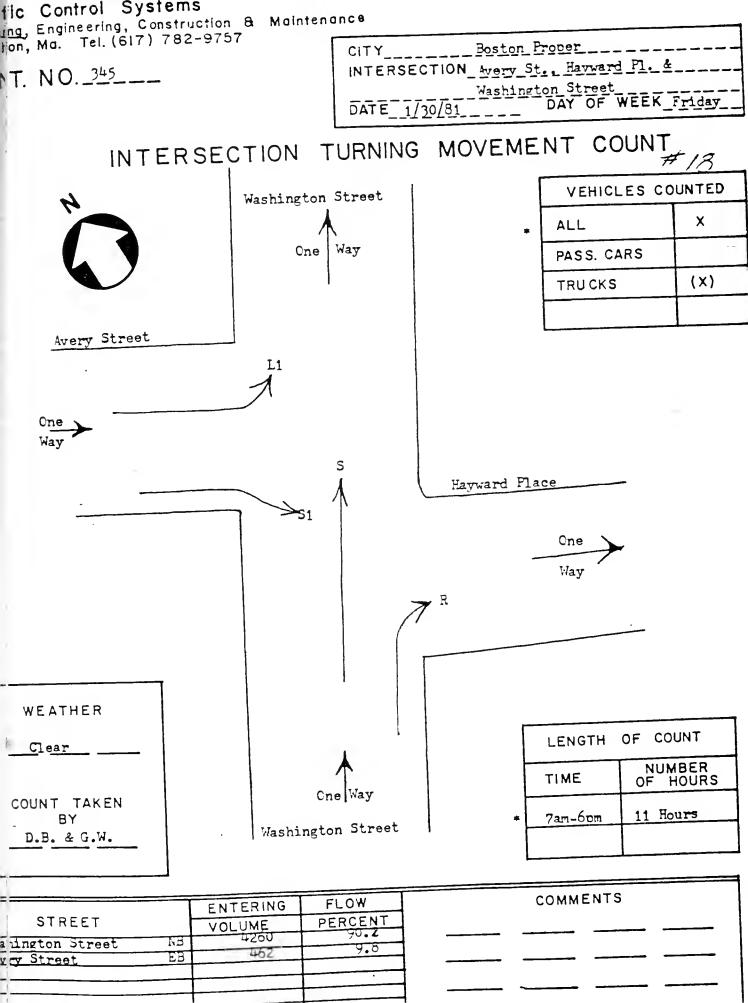
Heavy Truck Traffic Worksheet

(F) Decibet	Level (DNL)	ĸ	Adjusted ADT less than 100	Adjusted ADT less than 100	Less than 55
(E) Noise	Location	NAL 1 . 28.5	NAL 2 - 20'	NAL 3 - 2250	NAL 3 - 3400
(D) Adjusted	ADT	373	16	ĸ	112
(C) Nighttime	Factor	97.0	97.0	97.0	97.0
(B) Average Speed	Adjustment Factor	0.81	0.81	0.81	0.81
8	ADT	1000	43	197	300
Projected	1988*	20000	<b>8</b> 60	3940	9009
Traffic	Actual	12118	254	2876	
	Roadway	Tremont Street	Avery Street	West Street	Washington Street

Based on 6.5% annual growth rate

(A): Exhibit 5 · Traffic Composition and Exhibit 1
(B): Exhibit 1 · Page 9, Table 7
(C): Exhibit 1 · Page 8, Table 5
(D): (A)(B)(C)
(E): Exhibit 1 · Page 6, Distance of NAL to assessed roadway (f): Exhibit 1 · Workchart 2

ADDENDA



160°				

Coulton Sharania

345

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## MOVEMENT SUMMARY TABLE

Avery St., Hayward Pl. & Washington St. \_\_ CITY OR TOWN Boston Proper \_\_

DAY OF WEEK Friday \_\_ WEATHER Clear \_ RECORDER \_ D.B. & G.W. #18 TOTAL Avery St. Washington St. ME-HALF HOUR ARTS Northbound Eastbound TALLY =\_ M L1 S<sub>1</sub> S R //3 38 60 00-7:30 137 30-800 2 30 ∞-8:30 41 3 30-9:00 53 10 00-930 238 30-10:00 192 153 0 :001030 252 35 3041:00 33 00-11:30 203 30-12:00 228 3/ :0012:30 30-1:00 35 :00-1:30 23 34 30-2:00 200-230 12 1:30-3:00 207 5:00-3:30 233 3:30-4:00 276 1:00-430 225 34 1:30-5:00 244 9 20 5:00-530 5:30-6:00 5:00-6:30 5:30-7:00 7:00-7:30 7:30-8:00 B:00-8:30 330-9:00 3:00-9:30 9:30-10:00 D:00H0:30 00:1H0E:0 GRAND 358 726 104 TOTAL TOTAL *35*34 4722 TOTAL 1210

			Va.

City Boston - PROPER
Intersection TREMONT ST. & WEST ST.

INT. NO. 4 (BTPD # 5)

Date 11/23/82 Day of Week Tuesday

INTERSECTION TURNING MOVEMENT COUNT

Vehicles Counted

All X

Pass. Cars

Trucks (X)

• • • • • • • • • • • • • • • • • • • •
+

WEST ST.

TREMONT: ST.

Weather

OVERCAST

Count Taken

By . Pat Downey.

Length of	Count
Time	Number of Hours
7:00 AM	
6:00 PM	II HR

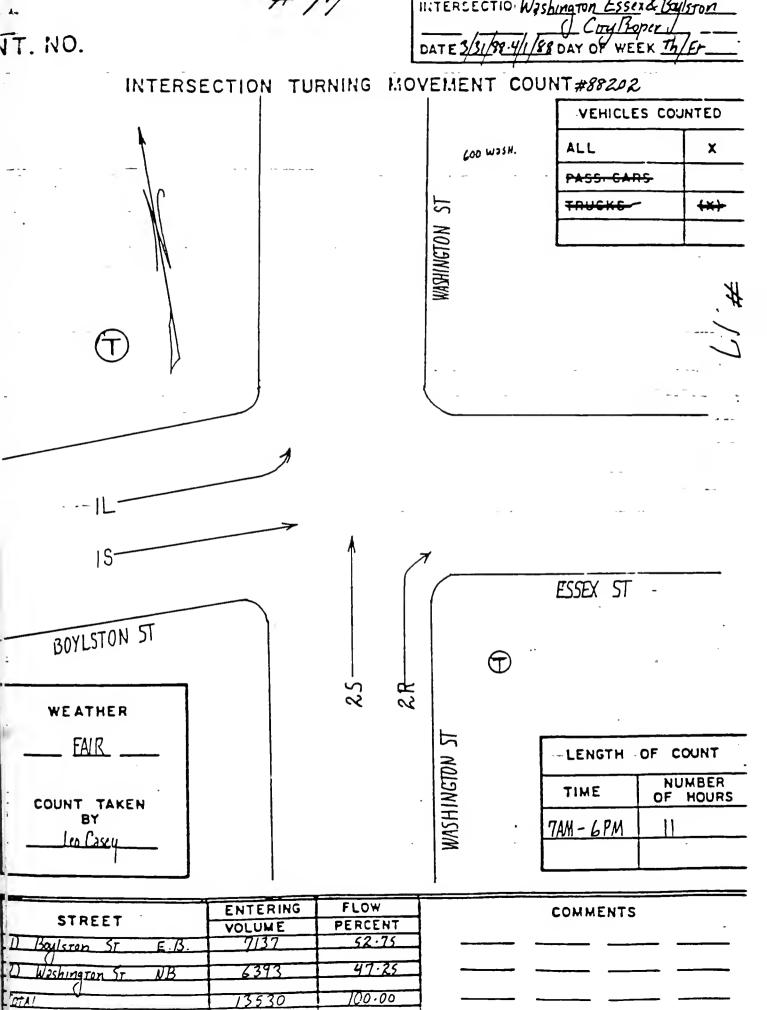
Street	Entering Volume	Flow Percent	Comments
TREMONT ST.	9899	80.5%	
WEST ST.	. 2397	19.5%	
·			
Total	12,296	100.0%	•

## TRAFFIC MOVEMENT SUMMARY TABLE

Location Transact St. & Wast St City or Town Boston

Time													Total
Starts					_								Half Hour
M	Ŋ	L											Tally
7:00-7:30	310	29											339
7:30-8:00	353	57	q.						-				410
8:00-8:30	435	60								-			495
8:30-9:00	457	92											549
9:00-9:30	452	801				1							560
9:30-10:00	394	116											510
10:00-10:30	448	95		_		1							543
10:30-11:00						-							553
11:00-11:30						1				:-			577
11:30-12:00		109		_						_ = =	= -	-	540
12:00-12:30		1					<b> </b>				-		593
12:30-1:00													600
1:00-1:30	448	110											558
1:30-2:00	459	139				1							598
2:00-2:30	474	136				1				: 1			610
2:30-3:00	482	119				1			=			.: =	601
3:00-3:30	458	131									72		589
3: 30-7:00	491	113									-		604
下:00-下:30	469									-			580
L: 30-5:00	489	147			<u> </u>								636
5:00-5:30	474				<u> </u>		<u> </u>						586
5:30-6:00	516	119		<u> </u>	ļ	<del> </del>	<del> </del>	_				ļ	665
6:00-6:30					├	-	<del> </del>					<u> </u>	
6:30-7:00 7:00-7:30						┼—	├─			·		<del> </del>	
7:30-8:00						┼	<del> </del>			,		<del> </del>	
8:00-8:30						+	<del> </del>						
8:30-9:00	<u> </u>			-	<del>                                     </del>	+	<u> </u>	-		7 1		<del> </del>	:
9:00-9:30						+	<del>                                     </del>		-	- :	. ,		
9:30-10:00		•			1			(-7		7.50 <u>1</u>			
10:00-10:3	1							-		· <u>-</u>			
10:30-11:00										-			
TOTAL	1899	2397								:	3 [	-	GRAND TOTAL

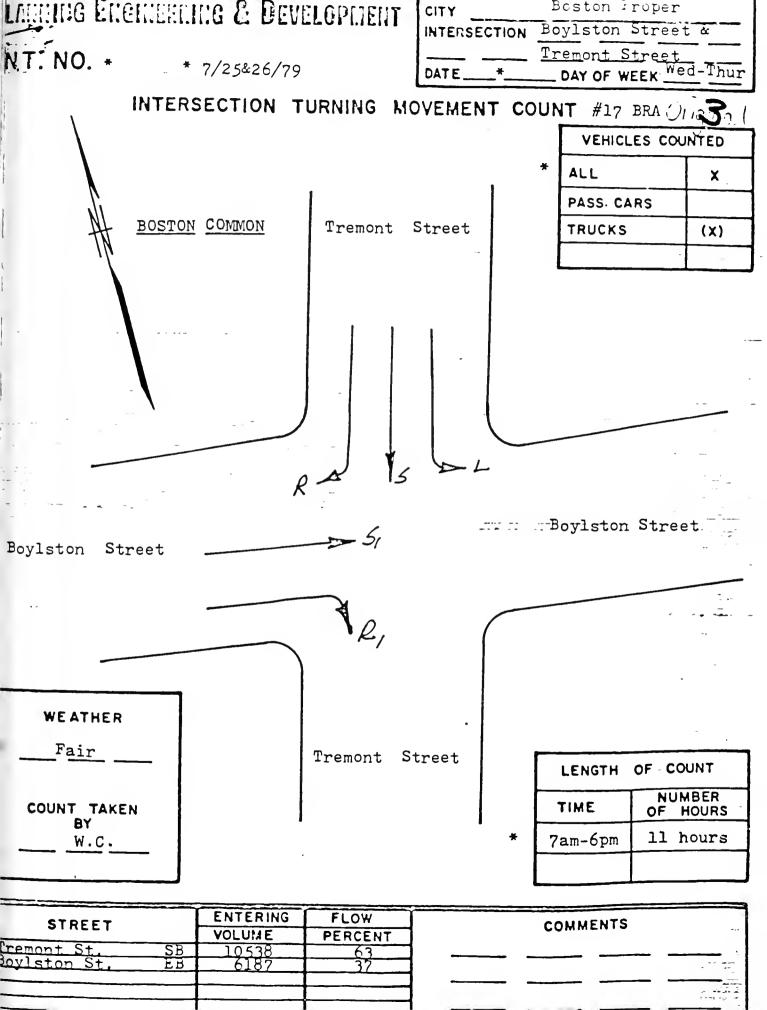
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AFFIC M	OVEMENT	SUMMARY T	ABLE
TION Washington, 13	ouls rond-1-ssex STS	_ CITY OR TOWN City_	Proper
EMAPLY 3/19ml / 75 DAY OF	WEER Thuis / Fr WEATH	SUMMARY TOWN City LIER Sair RECORDER A	co Cosey
ME Boulston ST	Woshington ST.		TOTAL
ARTS ( Easthound	Northbound		HALF HOURT
=M==[L==15	25 28		TALLY
0-730 = 28 181	40 118		367
24 24	82 99		466
D-8:30 _3/= -27/	-		-599
2-920 -96 349	XIV III		834
9-9:30 84 238	183 199		704
1-1020 = 59 - 199	161 [80]		-599
-10:30 -62 -180	135 [67]		544
0-1100 -60 -179	129 163		531
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AFFIC MOVEMENT SUMMARY TABLE ION Boylston Street & Tremont Street \_ CITY OR TOWN Boston Froper E-7/26&27/79 DAY OF WEEK Wed-Thur WEATHER Fair RECORDER W.C. Tremont Street Boylston St. IME Southbound TARTS Eastbound TOTAL -MHALF HOURLY R, ر ک TALLY 0-7:30 0-8:00 0-8:30 00:0-0 1-9:30 94 3/2 )-10:00 )-10:30 )-11:00 -11:30 229 113 -12:00 28/ -1230 - 1:00 /2/-1:30 -744 2:00 168 236 2:30 8/2 3:00 3:30 4:00 80 16, 1:30 82 5:00 60 530 58 -3191 142 212 :00 157 208 :00 :30 :30 L 1641 6019 2878 46.5 GRAND 10,538 TOTAL 16,725

Exhibit D

#### II. ENVIRONMENTAL PROTECTION COMPONENT

#### (D) Construction Impact

The goal of the trash disposal plan is twofold: to minimize its impact on traffic flow during construction, and to assure that trash removal is not disruptive to abutters.

During the commencement of construction of 170 Tremont, the developer received some complaints concerning trash disposal. Its immediate response to the situation and implementation of a trash removal schedule has eliminated further disruption to resident abutters. Moreover, the developer actively promotes ongoing dialogue with residents in order to minimize problems on an individual basis. Presently, trash removal at the 170 Parkside site occurs during non-peak, daylight hours. It is anticipated that a similar plan will be implemented during the construction of 165 Tremont.

Once 165 Tremont is occupied, the developer is considering the feasibility of scheduling pick-up between the hours of 10:00 a.m. and 3:00 p.m. on weekdays only and the possibility of hiring the same trash removal contractor employed by Tremont-on-the-Common in order to minimize the number and frequency of removals on Mason Street.

[062188]

Exhibit E

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# 165 and 172 Tremont Evaluation of Ambient Air Quality

#### Introduction

This report evaluates the results of an analysis of the effect that traffic generated by 165 and 172 Tremont Streets (the proposed Parkside East and Parkside at Mason Place projects) may pose to existing ambient air quality.

The goal of this study is to assess whether traffic generated by the proposed projects is sufficient to cause a change in the existing Levels of Service, i.e., the average delay experienced for each individual approach to an intersection (see Exhibit 1), at intersections within the assessment area.

Exhibits 2 and 3 identify the location of the proposed Parkside projects situated in the block bounded by Tremont, Avery, Mason and West Streets, and the circulation patterns of nearby roadways.

#### Conclusions

This study assessed the impact of traffic generated by Parkside East and Parkside at Mason Place. Of the estimated 150 vehicle trips generated daily at the Parkside site, 31% occur during each of the peak AM and PM periods (7:00-9:00

a.m. and 4:00-6:00 p.m., respectively). This is equivalent to 23 vehicle trips for each hour of peak traffic.

Exhibit 4 suggests that while traffic generated by Parkside increases at a very modest rate, that increase is sufficiently low so as to have <u>no</u> affect to existing Levels of Service. With levels of service unaffected, it can be inferred that existing concentrations of carbon monoxide and hydrocarbons, as those levels are defined by the National Ambient Air Quality Standards, will be likewise unaffected by traffic generated from the proposed projects.

#### Assessment Area

For purposes of this evaluation, HMM Associates, in its "Responses to BTD Comments," (contained in the Supplement to the 165 Draft Project Impact Report), assumes that "...all site-generated traffic must use Tremont Street, and that all trips will pass through the Tremont Street/Boylston Stret intersection." Based on that study, at this intersection, 40% of Parkside-generated traffic will turn west onto Boylston Street; 10% will continue across Boylston on Tremont, and the remaining 50% will turn east toward Washington/Essex Streets.

#### Boylston/Essex Washington Streets

During the two-hour peak AM period, (see Exhibit 4) 23 vehicles (11.5 per peak hour period) will enter this intersection from the Parkside site. This represents an increase of 4.8% in traffic volume, but only 3% of reserved

capacity. Consequently, it does not affect a change to the existing LOS B designation at the intersection.

#### West/Tremont Street

All vehicles egressing the Parkside site must do so at West and Tremont Street, an intersection with an existing LOS B. The impact of 23 additional vehicles (per peak one-hour period) is also well within the intersection's reserve capacity. LOS B can be expected to remain unchanged.

#### Boylston/Tremont Street

While this intersection, at LOS C, is presently at the mid-range of the service-level designation, an increase of 46 vehicles per two-hour peak period reflects a 2.8% increase in traffic volume and constitutes only 9% of reserved capacity. At this rate, Parkside-generated traffic would not cause a change in the existing LOS.

At the Kneeland/Washington Street intersection, with an existing LOS E, the impact of 5 Parkside-generated vehicles (or 2.5 for each AM peak hour) would represent only 5% of reserved capacity.

#### Mitigation Efforts

The developers of Parkside have implemented the following plans to mitigate any potential for impacting existing ambient air quality levels:

(1) There is no parking provision for commercial users or shoppers.

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- (2) The nature of the proposed retail shops is such that clientele will consist most likely of Parkside residents or shoppers already in the area. Thus, retail use of the ground levels will not generate increased vehicular traffic.
- (3) The purchase price for residential parking spaces discourages car ownership.
- (4) The provision of on-call car rental services serves as a disincentive to car ownership.
- (5) Access and egress to the parking garage, provided by the porte-cochere off of Mason Street, will accommodate 11 vehicles, and will prevent vehicles from queuing onto Mason Street. This design element will reduce the likelihood that traffic flow and speeds along that street will be signficantly reduced.

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#### Exhibit 1

#### LEVEL OF SERVICE (LOS) DESIGNATIONS\*

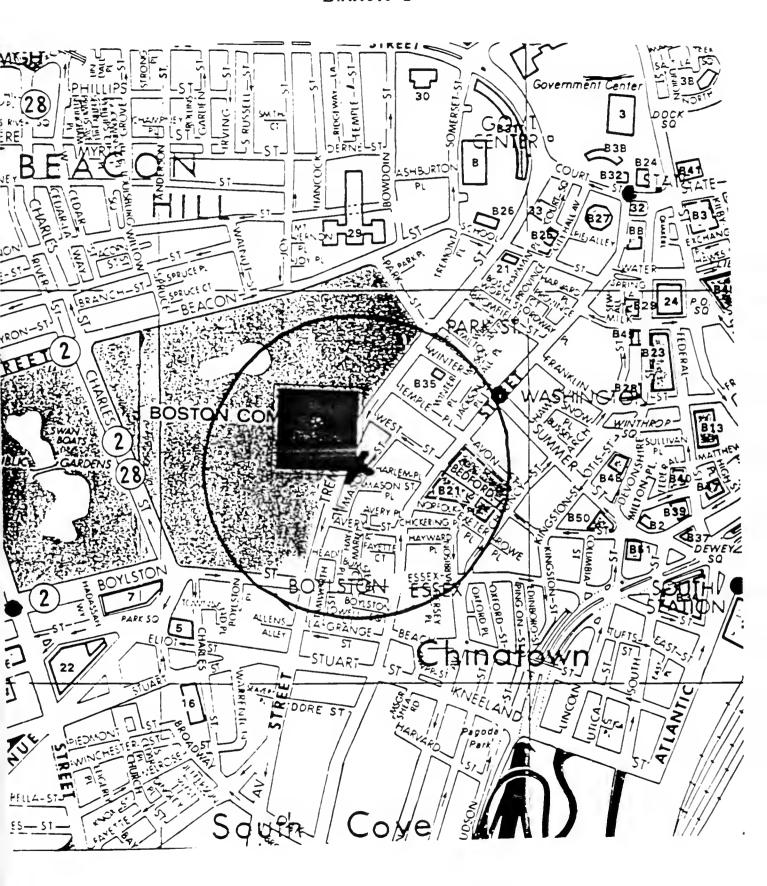
Category	Description	Delay Range** (Seconds per vehicle	Reserve*** Capacity (Vehicles Per Hour)
LOS A:	Describes a condition of free flow, with low volumes and relatively high speeds. There is little or no reduction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.50	400
LOS B:	Describes a condition of stable flow, with desired operating speeds relatively unaffected, but with a slight deterioration of maneuverability within the traffic stream.	5.1-15.0	300-399
LOS C:	Describes a condition still representing stable flow, but speeds and maneuverability begin to be restricted. The general level of comfort begins to deteriorate noticeably at this level.	15.1-25.0	200-299
LOS D:	Describes a high-density traffic condition approaching unstable flow. Speeds and maneuverability become more seriously restricted, and the driver experiences a poor level of comfort.	25.1-40.0	100-199
LOS E:	Represents conditions at or near the capacity of the facility. Flow is usually unstable, and freedom to maneuver within the traffic stream becomes extremely difficult.	40.1-60.0	0-99
LOS F:	Describes forced flow or breakdown conditions with queuing along critical approaches. Operating conditions are highly unstable as characterized by erratic vehicle movements along each approach.	60.1 or greater	N/A

<sup>\*</sup> Source: Transportation Research Board, Highway Capacity Manual, Special Report 209, 1985

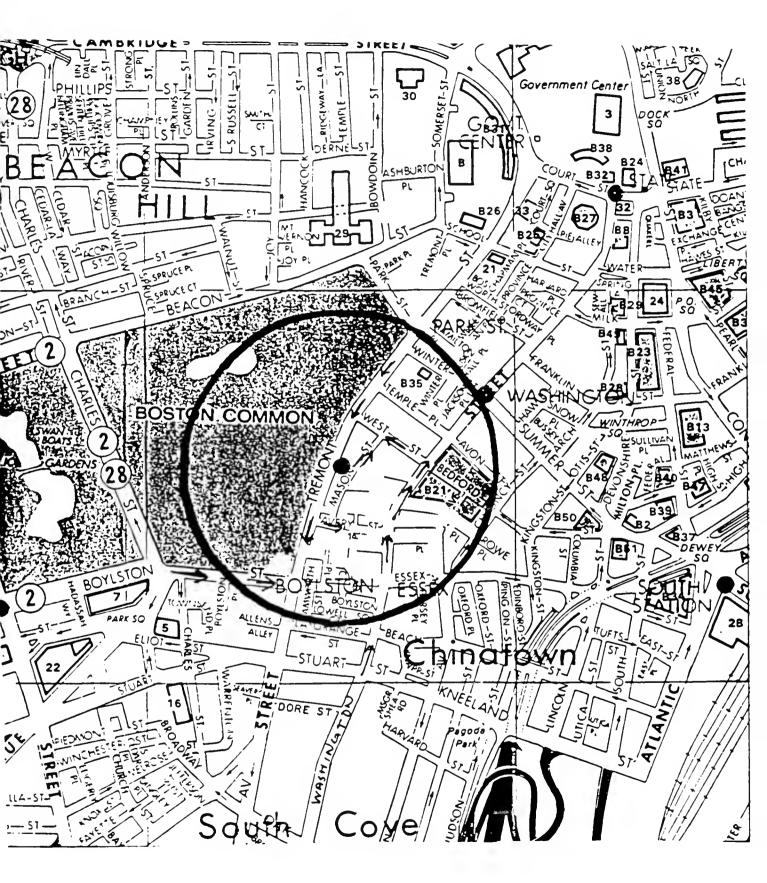
<sup>\*\*</sup> Delay ranges relate to the mean stopped delay incurred by all vehicles entering the intersection and do not consider the effects of traffic signal coordination. This criteria is intended for use in the evaluation of signalized intersections.

<sup>\*\*\*</sup> Reserve capacity refers to the unused capacity of the minor approach, on a per lane basis. This criteria is limited to use in the evaluation of unsignalized intersections.

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Scale: 1/8" = 82.5'



Scale: 1/8' - 82.5'

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Exhibit 4

Peak-Hour Traffic Volume\*

(E)	Reserve Capacity Parkside-Generated Iraffic Vehicles As % of Average PER HOUR** LOS PER HOUR	\$	33	<b>%</b> 9	5%
(0)	Reserve Capacity Vehicles PER HOUR**	200 - 299	300 - 399	300 - 399	700
(3)	Existing LOS	U	ω	ω	<b>≪</b>
(B)	With Parkside Total Entering Volume	1675	501	342	11
3	Existing Total Entering Volume	1629	827	596	99
	Peak Hour	¥	¥	¥	£
	Intersection	Boylston St./ Tremont St.	Boylston/Essex Washington St.	West St./ Tremont St.	Avery St./ Iremont St.

PEAK HOUR AM: 7:00 - 9:00 A.M. PEAK HOUR PM: 4:00 - 6:00 P.M.

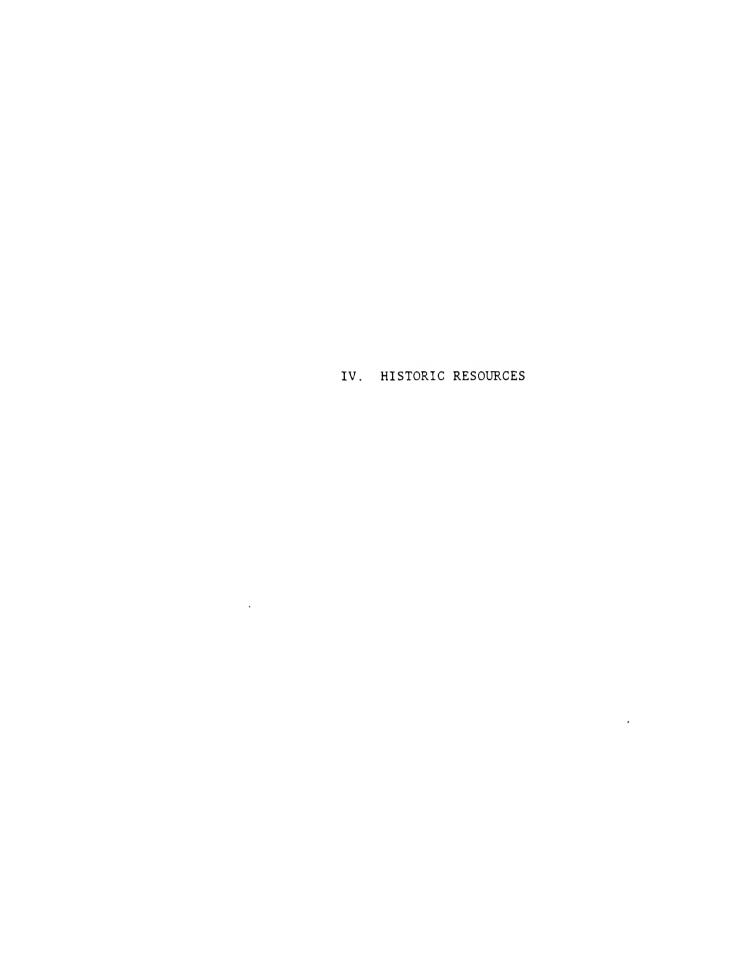
This represents capacity on a per hour (not Peak Hour) basis.

- Volume estimates are derived from Noise Assessment (see Supplement to DPIR). Peak rates are established using Tremont Street rate -- peak/total average daily traffic --(5/0.) 3
  - Based on estimates provided in HMM Associates' "Response to BTD Comments" (see Supplement to DPIR).
    See Exhibit 1.
    See Exhibit 1.
    Change in (A) and (B)/2 divided by average of D. (8)
- 9 <del>9</del> <del>9</del>

### Preliminary Adequacy Determination 31 May 1988

#### III. URBAN DESIGN COMPONENT

The sheets of drawings included in Exhibit 5 of the DPIR satisfy the requirements of the Scoping Determination and are adquate to enable the Authority to begin the review of Schematic Design.



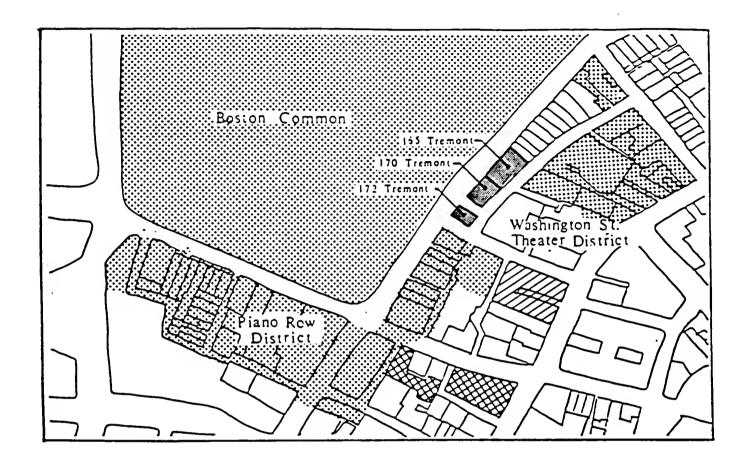
### Preliminary Adequacy Determination 31 May 1988

#### IV. HISTORIC RESOURCES COMPONENT

As per comments from the Boston Landmarks Commission, the following technical changes should be made in the FPIR:

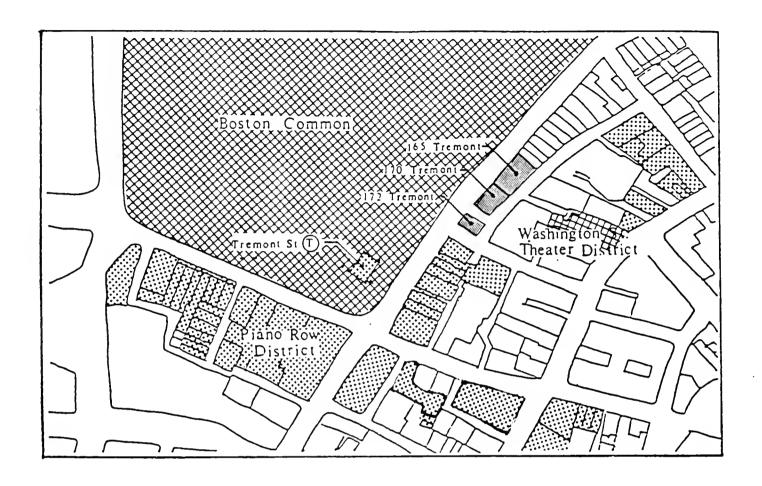
- (1) Historical Designation Plan: The Boston Common, Boylston Building, and YMCU building are also listed in the National Register (as well as being Boston Landmarks).
- (2) Historic District Disposition Plan: Both the Piano Row District and the West Street District are listed in the National Register; they are not suggested for designation.

Exhibit A



### Historical Landmarks

	Project Site Location
*****	Present Boston City Landmark and Suggested Individual National Register
	Present National Register District
1////	Suggested Individual National Register



## Historical Designation: Individual Site / Building

Project Site Location

National / Massachusetts Register

Boston Landmark

V. INFRASTRUCTURE SYSTEMS

# Preliminary Adequacy Determination 31 May 1988

### V. INFRASTRUCTURE SYSTEMS

The Scoping Determination for the DPIR required an Infrastructure Report describing the project's impact on water, sewer, and privat utilities, specific utility relocation issues, scheduling, and mitigation measures. No infrastructure report was included in the DPIR nor was there any mention made of infrastructure impact, save for a brief mention that no infrastructure relocation would be required contained in the construction impacts section. Therefore, the Infrastructure Systems component is insufficient.

In order to comply with the Scoping Determination, the demands of the project on infrastructure services should be assessed to ensure that the proposed density conforms to the interim zoning planning objectives.

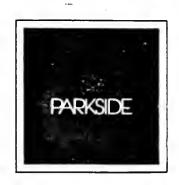
#### V. INFRASTRUCTURE SYSTEMS COMPONENT

- (1) Refer here to Exhibit A which is a compilation of letters received from all utilities concerning the possible impacts of the Project upon infrastructure capacity. Any concerns raised in this correspondence about the impact of the Project upon the infrastructure system have been addressed below.
- (2) (a) Boston Water & Sewer Commission. The East Side Interceptor is scheduled for completion in the Spring of 1990. Full occupancy for all three buildings is scheduled to be reached by the end of 1990. It is not, therefore, expected that the Project sewage loads will exceed or even reach pre-existing loads at the site handled by the current system. However, should the East Side Interceptor not be completed according to schedule, the Developer has agreed to control the sewage loads generated by the entire Parkside Project through the furnishing and the installation of a temporary sewage holding tank. Please note the attached correspondence from the Developer to the Boston Water and Sewer Commission dated August 24, 1987, which requests a waiver of the requirement for installation of a permanent sewage holding tank. The Boston Water and Sewer Commission's response dated September 2, 1987, is also attached. The Developer intends to keep the Boston Water and Sewer Commission fully apprised of the progress of construction and conclude this matter to the Commission's satisfaction.
  - (b) Boston Edison. Refer to the attached Boston Edison letter dated April 29, 1988. Boston Edison has reviewed the Project's design development plans and determined that the Project's loads upon their system pose no problem.

- (c) New England Telephone. Refer to the attached New England Telephone correspondence dated June 7, 1988, indicating that adequate telephone service will be provided to the Project.
- (d) Boston Fire Department. Please refer to the attached new construction permit issued on June 20, 1988, by the Boston Fire Department.
- (e) Boston Gas. Please refer to the attached Boston Gas letter dated June 15, 1988, which reports that gas availability for the Project is adequate.
- (f) Public Improvements Commission. The Developer intends to have submitted an application for the discontinuance of those portions of Mason Street and Tremont Street affected by the Project to the Public Improvements Commission no later than August 15, 1988. Please refer to Exhibit B which show the engineer's plans of discontinuance. The Developer of 170 Tremont Street has already been granted the discontinuance of Mason Place and has purchased the discontinued property from the City of Boston (note the attached ruling from the Public Improvements Commission dated February 5, 1987, and the deed which conveys the title of the discontinued property from the City of Boston to the Developer dated April 8, 1987).
- The attached Compiled Utility Plan, dated April 21, 1987 (Revision 14), indicates the approved locations for all utilities along Mason Place and within the garage area of 170 Tremont Street. This utility relocation plan was accepted by the Public Improvements Commission on November 6, 1986, as part of that Commission's recommendation to the City of Boston that the City-owned land required for the successful development of the Project be discontinued and sold to the Developer. Again, please refer to the attached copy of the ruling made by the Public Improvements Commission. Regarding the proposed construction through Mason Place and its possible effect upon utility lines, please refer to Exhibit C which contains correspondence from those utilities with facilities or proposed facilities in Mason Place.

- (4) The fire pump, which will be located in the basement of the proposed development at 172 Tremont Street and which will service 165, 170 and 172 Tremont Street, will be designed to adequately bear the loads presented by the three structures. The fire pump is scheduled to be fully installed and entirely operative by December of 1988, at which time it will be servicing 170 Tremont Street. By March of 1989, it is anticipated that the pump will serve the proposed 172 Tremont Street, and by November of 1989, the pump will also service the structure at 165 Tremont Street.
- (5) The proposed development is expected to have no impact upon utility services which will require public investment, nor will there arise from the progress of this development the need for any upgrading of the public ways.

Exhibit A



24 August 1987

Water and Sewer Commission 10 Post Office Square Boston, Massachusetts 02109

Attn: John P. Sullivan, Director of Engineering

RE: Parkside West

Sewage Holding Tank

Dear Mr. Sullivan:

Pursuant to our continuing correspondence and discussions with Ed Duggan of your office regarding our request to eliminate the sewage holding tank from referenced Project, we wish to modify our request as follows.

As construction on the East Side Interceptor is scheduled for completion at or near the estimated time of occupancy for Parkside West, we would request that we meet approximately six months prior to occupancy of Parkside West to review the status of construction and estimated date of operation for the Interceptor. Our present schedule calls for this meeting to be held in September 1988. At that time, if we can agree that the sewage occupancy demand for the building would not exceed the previous volume in advance of the Interceptor becoming operational, you would not require the construction of a sewage holding tank. it be determined however that we will exceed the preexisting load on the system, we would be required to construct a temporary sewage holding at some location on the Parkside site which could include a remote, at grade tank on the Parkside East site, to service the Parkside buildings until such time as the East Side Interceptor is operational. Upon completion of the Interceptor, we would be allowed to disconnect and remove the temporary tank.

Parkside West Sewage Holding Tank 24 August 1987 Page 2

If this is consistent with your understanding of our agreement, please indicate your acceptance of our proposal below.

Again, we appreciate the cooperation we have received from you and Ed Duggan regarding this matter. Thank you for your continuing attention to this. Please call me if you have any questions, or require any amendments to this proposal.

Very truly yours,

Scott Levitan

cc: E.J. Hall, E. Straub

H. Corinha

File: TOA 3.540, SL Chrono

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# Boston Water and Sewer Commission

RECEIVED



10 Post Office Square Boston, Massachusetts 02109 617-426-6046

HALL DAVISON & CO.

September 2, 1987

Hall, Davison & Company 20 University Road Cambridge, MA 02138

Attn: Mr. Scott Levitan

RE: Parkside West

Sewage Holding Tank

Dear Mr. Levitan:

We have reviewed your letter of August 24, 1987 regarding a request for a modification to the requirement for a sewage holding tank for the Parkside West development. While this project will be required to utilize a holding tank until the New East Interceptor is completed, it will no longer be required to construct the holding tank within the Parkside West building as was proposed in the sanitary sewage study, but rather the tank may be built on an acceptable portion of the Parkside East property. Within 60 days of the date of this letter, Hall, Davison & Company shall submit to the Boston Water and Sewer Commission, for approval, a revised detailed section to the sanitary sewage study which indicates where an accesible location will be reserved for the holding tank on the Parkside East site and how an acceptable design is feasible for conveying sewage flows to the tank, detaining the required flows in the tank for the specified periods of time and discharging these flows from the tank into the sewerage system in Mason Street.

Presently, the New East Side Interceptor has been built as far as Summer Street (at South Station) and is being constructed between Summer Street and Rowes Wharf. Construction of this section of the interceptor is planned to take place between the spring of 1987 and the spring of 1990. Upon completion and activation of this segment, the Parkside West project will no longer be required to use a sewage holding tank.

As your letter indicates, a meeting approximately six months prior to the planned 100 percent occupancy of Parkside West should be scheduled by you in order that the holding tank requirement can be effectively evaluated in relation to the extent of the completion of the New East Side Interceptor.

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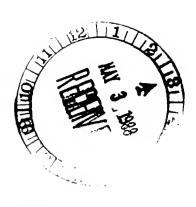
If we can provide you with any additional information, please call.

John P. Sullivan, Jr., P.E. Director of Engineering

JPS/ED/gf

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April 29, 1988

Hall, Davison & Company 20 University Road Cambridge, MA 02138 Attn: Michael S. Kelley

> Parkside East Re:

> > 165 Tremont Street

Boston, MA

Dear Mr. Kelley:

In response to your recent inquiry, sufficient electric capacity will be made available to the above mentioned development.

For any additional information on this matter, please call me at 617-42 - 2261.

Very truly yours,

Lawrence D. Denehy

District Sales Representative

Energy Services Department

Laurence D Venely

LDD/mb

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# New England Telephon

A NYNEX Company

1070 Hancock Street Floor 4 Quincy, Massachusetts 02169 Phone (617) 847-9066

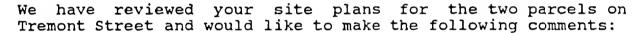
June 7, 1988

Hall, Davidson & Company 20 University Road Cambridge, MA 02138

Attention: Mr. Michael S. Kelley

Subject: Tremont Street Parcels

Dear Mr. Kelly,



- (1) Telephone services will be provided to our customers within your buildings in accordance with the tariff regulations now in effect.
- (2) In order that we may allocate adequate facilities for each building, we will require that you provide us with specific details of the total square footage to be rented in each building as office space, retail space and/or number of living units.
- (3) The point of entrance into each building should be identified in the very near future so that we may complete our conduit work in the public way with adequate time for cable placement. There is no mainline telephone conduit on Tremont Street and all entrances must be built from Mason Street.
- (4) The Telephone Company will construct all conduits in the public way according to the tariffs and the City of Boston's design requirements. The building owner will be required to provide all conduits, sleeves, holes or carrying plant within the property line. The building owner's conduits must extend beyond the property line an adequate amount to allow the connection with the Telephone Company's conduit.

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- (5) All plans for distribution systems within the building including space for electrical protection, grounds, sleeves, holes, conduits, trays, backboards and space for telephone terminals should be reviewed with Mr. Robert Kelley, BICS Coordinator.
- (6) Any adjustments required to be made to the existing Telephone Company Network in the public way must be negotiated for. Relocations or adjustments of a minor nature may be considered. However, it is not possible to make major adjustments. The Telephone Company will expect full reimbursement for the cost of any adjustment no matter how small that expense may be.

Should you require any additional information in this matter, please direct any correspondence to Mr. Robert Kelley, BICS Coordinator. We stand ready to assist you with your project as we have already done in the past.

Paul Shea Engineer

cc: Mr. Richard Andrade

Ms. Tana McDuffy Mr. Robert Kelley

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## BOSTON FIRE DEPARTMENT-FIRE PREVENTION DIVISION

#### PERMIT

PERMIT NUMBER:201970

165UED :06/20/88 START :07/01/88

EXPIRES:07/01/89

Name: TREMONT PLACE REALTY TRUST

Phone: 5767615

Address:

20 UNIVERSITY RD

CAMBRIDGE

In accordance with the provisions of Chapter 28 of the Ordinances of 197 known as the Boston Fire Prevention Code and amendments thereto, this permit is granted to be exercised at

165 TREMONT ST

BOSTON

Fire District: 3

3

Subject to compliance with the applicable provisions of said Code and withe safeguards and other conditions herein prescribed, to conduct the following business:

CONSTRUCT A NEW BUILDING CONDOC AND RETAIL

and/or for the keeping, storage, use, sale, or manufacture of the following hazardous materials:

NEW CONSTRUCTION

767.33 19 FLS

# Safeguards and Conditions Prescribed:

COMPL, WITH THE PROVISIONS OF THE BOSTON FIRE PREV. CODE AFTICLET MAINTAIN AND FIST ALL MECESSAFY LICENSES AND FERMITS FROM CONTRACTORS AND SUB-CONTRACTORS.

The person accepting this persit shall conform to the Statues of the Commitmenth. Commonwealth of Massachusetts Fire Prevention Regulations, the Soston Fire Prevention Code, the Ordinances of the cot. of Boston and the conditions of this cermit. This permit may be revoked at any time by the Head of the Fire Departmenth a vicition of any of its conditions shall work an immediate revocation of the cermit. The person to whom this permit is issued shall indemnify and save harmless the City of Boston from any damage it may sustain, or be required to pay by reason of the exercise of this permit, or by reason of any act or neglect of himself or any of his employees or agents relating to the exercise of this permit or by reason of any violation of any condition of this permit.

Granted by:

Fire Commissioner

Attest:

This is an ORISINAL PERMIT and MUST AT ALL TIMES BE VERT DETERMENT the PREMISES. - remembed contribute must be obtained

ennually from the BOSTON FIRE DEPARTMENT.

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Boston Gas Company 201 Rivermoor Street Boston, Massacrisetts 02132 Telephone (617) 323-9210

> Hall, Davison & Company 20 University Road Cambridge, MA 02138

42.

Attn: Michael S. Kelley

June 15, 1988

This letter is confirmation of your inquiry for gas availability for 165 Tremont Street, Boston

Natural gas is available in the amount of 11,470 MSTuh at 4" water column pressure at the outlet side of the meter.

When gas requirements are confirmed to include mains, supplies and metering, we will prepare a written Sales Agreement, including all construction charges, which is needed to commit this gas load.

If you have any questions, please feel free to call me at 323-9210.

Sincerely,

Richard J. Fogarty

Commercial Representative

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# Boston Water and Sewer Commission

425 Summer Street Boston, MA 02210-1700 617-330-9400

May 5, 1988

Mr. Michael S. Kelley Hall, Davison & Company 20 University Road Cambridge, MA 02138

Re: Proposed Development at Parkside East (165 Tremont Street) and Parkside at Mason Place (172 Tremont Street)

Dear Mr. Kelley:

In response to your recent submittal regarding the above referenced developments, we are providing the following information for your use.

# Parkside East (165 Tremont Street)

This project will be required to discharge its wastewater into an existing 15 inch combined sewer which runs along Mason Street to Avery Street. Please be advised that this sewer is tributary to the East Side Interceptor and hence, this project will be subject to the Boston Water and Sewer Commission's sewage holding tank requirements until such time as construction of the New East Side Interceptor permits this requirement to be At present, the section of the Interceptor to which rescinded. this project is tributary is under construction and is scheduled for completion in the Spring of 1990. The Mason Street sewer is in questionable condition and is currently under contract to have two access manholes constructed on it and to be cleaned and inspected. The results of this inspection will determine the type and extent of repairs needed to restore this sewer. However, as a result of the ongoing construction at Parkside West (170 Tremont Street), the commencement of this work has been requested by that project to be delayed until some time this summer. Consequently, until this inspection contract is completed, it is not possible to determine what magnitude of excess capacity exists in this sewer. The sewer will have sufficient capacity to handle all tributary flows once it is restored without any adverse consequences.

A 16 inch high service water main is available for domestic water and for fire protection in Tremont Street and a 12 inch high service water main is available for domestic water and for fire protection in Mason Street. The Parkside West Project utilized

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Mr. Michael S. Kelley May 5, 1988 Page Two



the Tremont Street water main as its source of domestic water and for its fire protection. Adequate supply is available in this main for the subject project.

# Parkside at Mason Place (172 Tremont Street)

The sewer information provided for the Parkside East Project applies to this Project, except that due to the indicated sewage flow to be generated from it, a sewage holding tank is not required for this Project.

Upon a complete review of these projects and the satisfactory fulfillment of all Boston Water and Sewer Commission site plan requirements by Hall, Davison and Company, these projects will be issued a sewer connection permit.

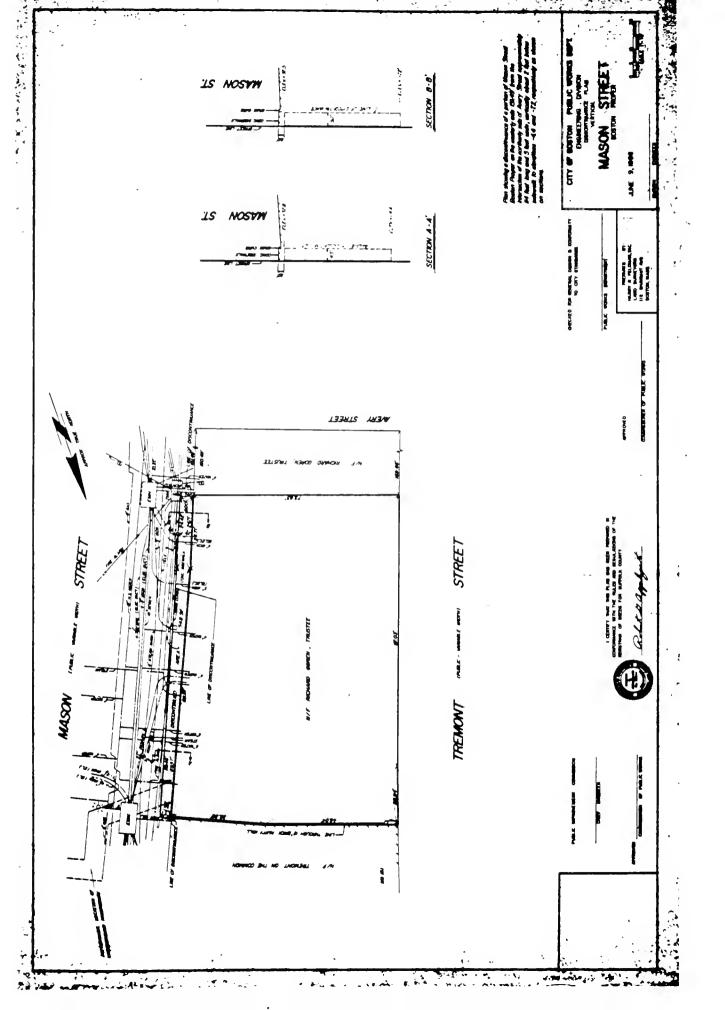
If we can be of any further assistance in this matter, please call.

ohn P. Sullivan, Jr., P.E.

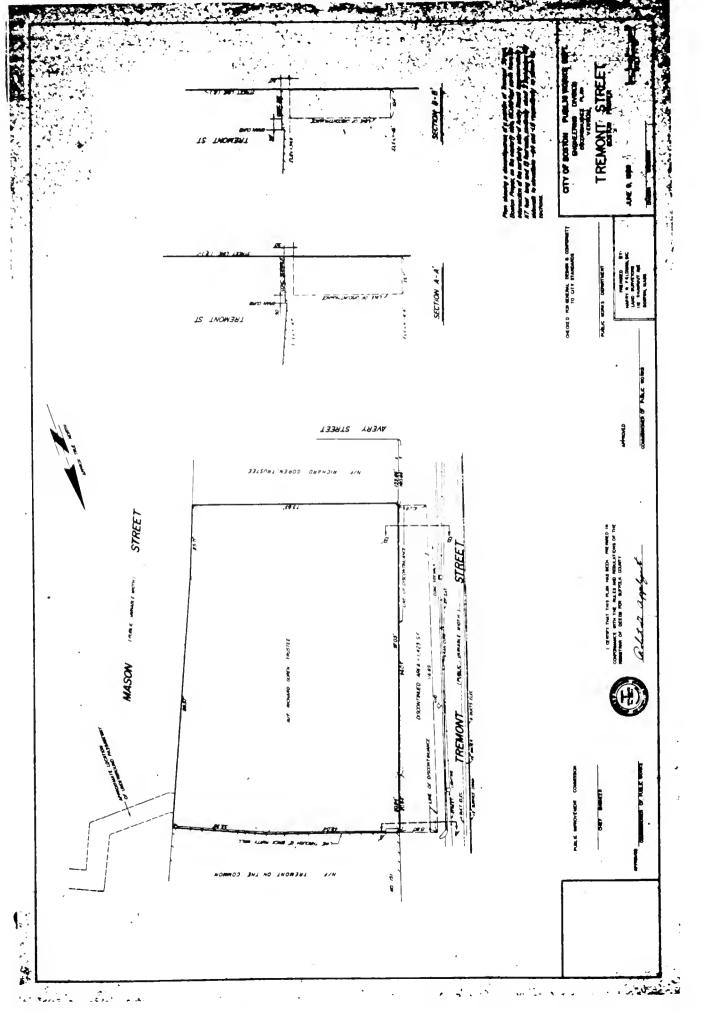
Acting Chief Engineer

JPS/ED/gf

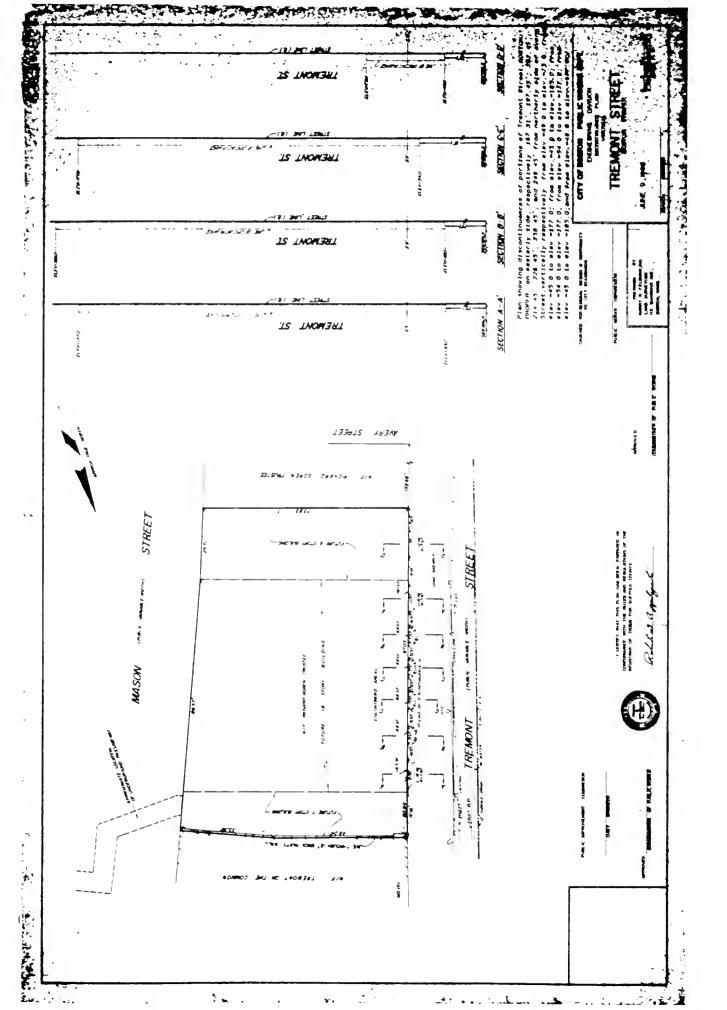
Exhibit B

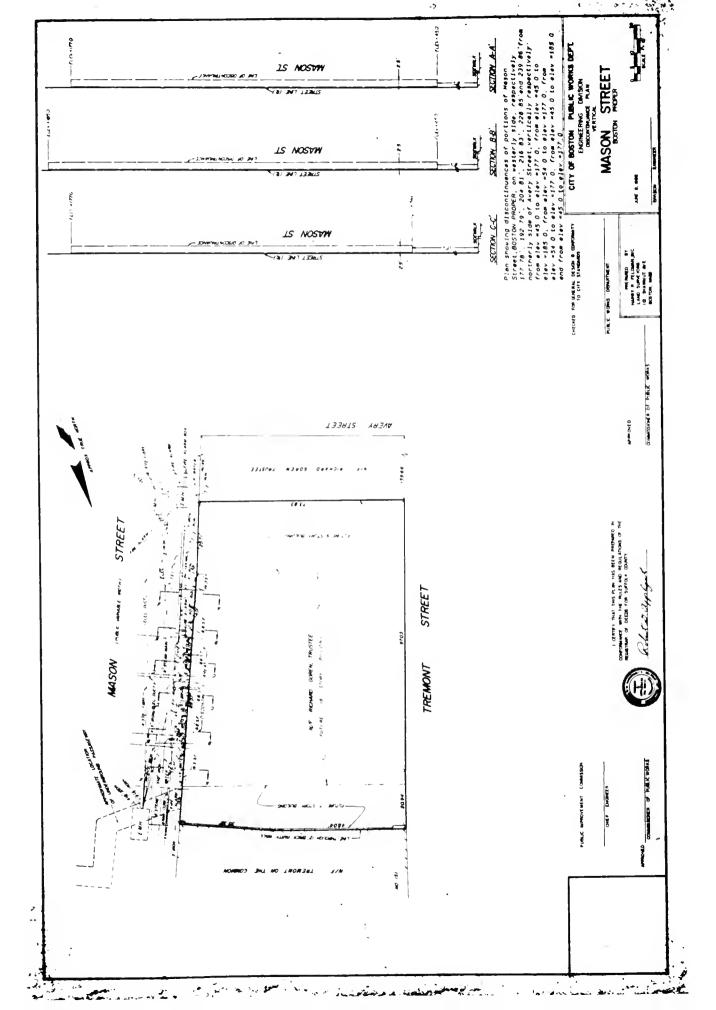


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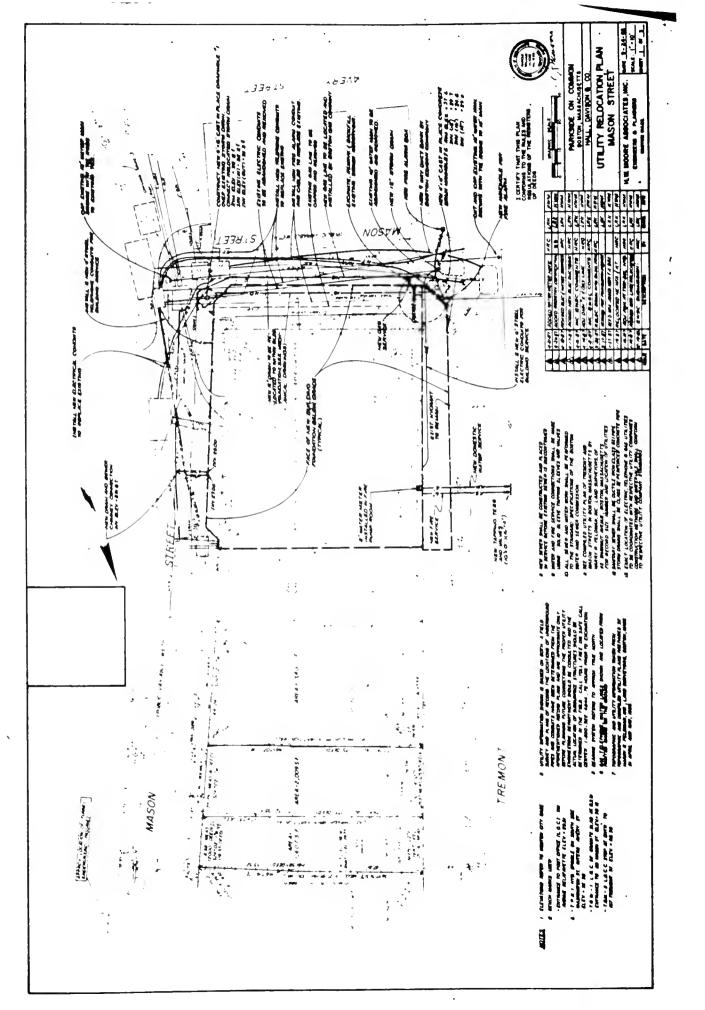


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In Public Improvement Computescent of the City of Boston, October 23  Ordered.—That due notice be given, that this Commission is of the opinion that is said city, a public improvement should be made, consisting of the discontinuance of MASUN STREFT Boston Proper District, from Tremont Street approx.—ately 75 feet easterly	56			
in the office of this Commission, that it intends to pass an order for making said improvement, and that it appoints 10:00 o'clock A. M., offlovember 6, 1986				
Executive Secretary				
In Public Improvement Commission, of the City of Boston, February 5, 1987 x82.  Ordered:—That this Commission, having passed the order of notice relating to the public improvement hereinafter described, and having caused a copy of said order to be published October 25, 1986				
deposited in the office of the Engineering Division, Public Works Department, of said city named, bounded and described as follows:				
A highway	ı			
feet; easterly by the westerly line of Mason Street, twenty-nine and 01/100 fec.,				
southerly by the southerly line of Mason Street, by two measurements, eighteen				
and 10/100 feet, and fifty-six and 20/100 feet; and westerly by the easterly $\frac{1}{2}$				
line of Tremont Street, thirty-one and 05/100 feet: containing two thousand one				
PUBLIC IMPROVEMENT COMMISSION  Agb  Agb				
1 July 15 to grade				

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0 1	In Public Improvement Commission of the City of Boston, October 23 xkxx 1986 Ordered:—That due notice be given, that this Commission is of the opinion that, in said city, a public improvement should be made, consisting of the discontinuance of a cortion of MASON STREET. Buston Proper District. On the westerly side, from Hason Street approximately 96 feet northerly, vertically below the sidewalk.
- 222	substantially as shown on a plan in the office of this Commission, that it intends to pass an order for making said improvement, and that it appoints 10:00 o'clock A. M., of November 6, 1326
	Executive Secretary
	In Public Improvement Commission, of the City of Boston, February 5, 1987 198x.  Ordered:—That this Commission, having passed the order of notice relating to the public improvement hereinafter described, and having caused a copy of said order to be published October 25, 1986  ***T\$\frac{1986}{27}, 1986  ***T\$\frac{1987}{27}, and October 27, 1986  ***In the Boston Globe and the Boston Herald two daily newspapers published in the City of Boston, and having given the public hearing, notice of which was given in said order, and being of the opinion that public convenience so requires, does hereby order the making, in said city of the public improvement, shown on a plan, marked "City of Boston, Public Works Department, Engineering Division, Discontinuance Plan, Mason Street, Boston Proper, February 3, 1987, Gordon Barnes, Division Engineer
	deposited in the office of the Engineering Division, Public Works Department, of said city, and named, bounded and described as follows:
	A portionofahighwaynamedMASQN_STREET is hereby_discontinued
	as a public highway, from Mason Street approximately 36 feet northerly, vertically
	below the sidewalk.
	Said portion of MASON STREET as hereby discontinued is bounded:
	Northerly by the westerly line of Mason Street, at the intersection of Mason
	Street and Mason Street, eighty and 06/100 feet; easterly by Mason Street, five and
	00/100 feet; southerly by Mason Street, ninety-six and 05/100 feet; westerly by
	Mason Street, two and 36/100 feet; and northerly by Mason Street, sixteen and
	14/100/feet: containing four hundred eighty-nine square feet more or less.
	EdunMarki  PUBLIC IMPROVEMENT COMMISSION
	ago Reference to Thym
	FEB 05 1975

In Public Improvement Commission of the City of Boston, Interes 23, 1986 199 Ordered.—That due notice by given, dist this Commission is of the opinion that, in said city, a public improvement should be made, consisting of the discontinuance of a control of TPEMONE STREET, Boston Proper District, on the easterly side, from the intersection of Mason, Street approximately 36 for northerly;

substantially as shown on a pian in the office of this Commission, that it intends to pass an order for making said improvement, and that it appoints 10:00 o clock A. M., of hovemore 5, 1986 xisi co and the office of this Commission as the time and place for a public hearing in the matter.

A true copy of an order passed by said Commission on said day.

......

Executive Secretary

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In Public Improvement Commission, of the City of Boston, February 5, 1987 198x a Ordered:—That this Commission, having passed the order of notice relating to the public improvement hereinafter described, and having raused a copy of said order to be published October 25, 1985 x 1987, and October 27, 1986 x 1987 and the Boston Giore and the Easton Fereic two daily newspapers published in the City of Boston, and having given the public hearing, notice of which was given in said order, and being of the opinion that public convenience so requires does hereby order the making, in said city of the public improvement, shown on a plan, marked "City of Boston, Full 10 works leasinthers, Engineering livision, liscontinuance Plan, Instant Street, Boston Procent February 3, 1987.

Sondon Barnes, liviston Engineer.

deposited in the office of the Engineering Division. Public Works Department, of said city, and named, bounded and described as follows:

as a public nighway, on the easterly side, from the intersection of Mason Street approximately 95 feet northerly.

Said portion of TREMONT STREET as hereby discontinued is bounded:

Easterly by the line of Tremont Street, minety-five and 83,700 feet, southerly by the line of Tremont Street, eight and 95,700 feet, westerly by the line of Tremont Street, minety-five and 81,700 feet; and northerly by the line of Tremont Street ten and 28,700 feet; containing nine numbers and seven square feet more or

less.

PUBLIC IMPROVEMENT COMMISSION

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> ω Executive Secretary

In Public Improvement Commission, of the City of Boston, February 5, 1987 1980.

Ordered:—That this Commission, having passed the order of notice relating to the public improvement hereinafter described, and having caused a copy of said order to be published October 25, 1986 198x, and October 27, 1986 198x, and October 27, 1986 198x, and the Boston Herald two daily newspapers published in the City of Boston, and having given the public hearing, notice of which was given in said order, and being of the opinion that public convenience so requires, does hereby order the making, in said city of the public improvement, shown on a plan, marked "City of Boston, Public Works Cepartment, Engineering Division, Discontinuance Plan, Mason Street, Boston Proper, February 3, 1987, Gordon Barnes, Division Engineer.

deposited in the office of the Engineering Division, Public Works Department, of said city, and named, bounded and described as follows:

Said portions of MASON STREET as hereby discontinued is bounded:

Westerly by the line of Mason Street, eleven and 00/100 feet; northerly by the line of Mason Street, three and 50/100 feet; easterly by the line of Mason Street, eleven and 00/100 feet; southerly by the line of Mason Street, three and 50/100 feet; westerly by the line of Mason Street, twenty-two and 50/100 feet; northerly by the line of Mason Street three and 50/100 feet; easterly by the line of Mason Street, twenty-two and 50/100 feet; southerly by the line of Mason Street, three and 50/100 feet; westerly by the line of Mason Street, eleven and 00/100 feet: northerly by the line of Mason Street, three and 50/100 feet; easterly by the line of Mason Street.

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eleven and 00/100 feet; and southerly by the line of Mason Street, three and 50/100 feet; from elevation 57.4 to elevation 187.9: containing one hundred fifty-six square feet more or less.

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PUBLIC IMPROVEMENT COMMISSION

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## CITY OF BOSTON

IN CITY COUNCIL

Jun 2 11 57 AP '87

REGISTER TO

WHEREAS, under date of October 3, 1986, Tremont place Realty Trust petitioned the Public Improvement Commission to discontinue the following portion of Mason Street:

Mason Street, Boston Proper District, from Tremont Street, approximately 75 feet easterly;

a portion of Mason Street, Boston Proper District, on the westerly side, from Mason Street approximately 95 feet northerly, vertically below the sidewalk;

a portion of Mason Street, Boston Proper District, from a point approximately 2 feet north of Mason Street approximately 12 feet northerly, vertically above the sidewalk;

a protion of Mason Street, Boston Proper District, from a point approximately 29 feet north of Mason Street, approximately 23 feet northerly, vertically above the sidewalk;

a portion of Mason Street, Boston Proper District, from a point approximately 66 feet north of Mason Street approximately 11 feet northerly, vertically above the sidewalk;

a portion of Tremont Street, Boston Proper District, on the easterly side, from the intersection of Mason Street approximately 96 feet northerly;

all as described on a certain plan marked "Citv of Boston, Public Works Department, Engineering Division, Discontinuance Plan, Mason Street, Boston Proper, February 3, 1987, Gordon Barnes, Division Engineer;"

WHEREAS, a duly authorized public hearing was held on January 29, 1987 for the proposed discontinuance, all abutters having been notified by certified mail of said hearing; and

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WHEREAS, the Commissioner has determined that the land lying within the discontinued area occured in fee by City of Boston comprising Three Thousand Seven Hundred (3,700) square feet no longer required for public purposes, and further that said discontinued area has a fair market value of \$177,000.00; now therefore it is

ORDERED, that the Mayor of the City of Boston be and he hereby is authorized to execute and deliver to the Tremont Street Realty Trust for the sum of \$177,000.00 an instrument in writing conveying all of the City of Boston's right, title and interest in and to the discontinued area as herein described.

I HEREBY CERTIFY THAT THE FOREGOING, IF PASSED IN THE ABOVE FORM, WILL BE IN ACCORDANCE WITH LAW.

CORPORATION COUNSEL

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City Clark

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## DEED

WHEREAS, by an Order of City of Council of the City of Boston read and passed March 25, 1987 and read and passed for a second time April 8, 1987 and approved by the Mayor of the City of Boston on April 14, 1987 the Mayor of the City of Boston is authorized to sell for one hundred seventy seven thousand dollars (\$177,00,00) to the Tremont Place Realty Trust the following described parcel of land.

NOW THEREFORE, the City of Boston, a municipal corporation duly authorized and existing under the laws of the Commonwealth, in consideration of the sum of one hundred seventy seven thousand dollars (\$177,000.00) to it paid the receipt whereof is hereby acknowledged, does hereby grant to Richard A. Gorin and Thomas Piatt, trustees of Tremont Place Realty Trust, created under a declaration of trust dated February 15, 1985 and recorded in Suffolk County Registry of Deeds in Book 11412, Page 199 all of the City of Boston's right, title and interest to the following described parcels of land.

1. A highway named MASON STREET from Tremont Street approximately 71 feet easterly.

Said MASON STREET as discontinued is bounded:

Northerly by the northerly line of Mason Street, seventy-one and 47/100 feet; easterly by the westerly line of Mason Street, twenty-nine and 01/100 feet; southerly by the southerly line of Mason Street, by two measurements, eighteen and 10/100 feet, and fifty-six and 20/100 feet; and westerly by the easterly line of Tremont Street, thirty-one and 05/100 feet; containing two thousand one hundred forty-eight square feet more or less.

2. A portion of a highway named TREMONT STREET on the easterly side, from the intersection of Mason Street approximately 96 feet northerly, vertically below the sidewalk.

Said portion of TREMONT STREET as discontinued is bounded:

Easterly by the line of Tremont Street, ninety-five and 83/100 feet; southerly by the line of Tremont Street, eight and 95/100 feet; westerly by the line of Tremont Street, ninety-five and 81/100 feet; and northerly by the line of Tremont Street ten and 28/100 feet; containing nine hundred and seven square feet more or less.

3. A portion of a highway named MASON STREET from Mason Street approximately 96 feet northerly, vertically below the sidewalk.

Said portion of MASON STREET as discontinued is bounded:

Northerly by the westerly line of Mason Street, at the intersection of Mason Street and Mason Street, eighty and 06/100 feet; easterly by Mason Street, five and 00/100 feet; southerly by Mason Street, ninety-six and 05/100 feet; westerly by Mason Street, two and 36/100 feet; and northerly by Mason Street, sixteen and 14/100 feet; containing four hundred eighty-nine square feet more or less.

4. Portions of a highway named MASON STREET from a point approximately 2 feet north of Mason Street approximately 12 feet northerly; from a point approximately 29 feet north of Mason Street, approximately 23 feet northerly; and from a point approximately 66 feet north of Mason Street approximately 11 feet northerly, vertically above the sidewalk.

Said portions of MASON STREET as discontinued is bounded:

Westerly by the line of Mason Street, eleven and 00/100 feet; northerly by the line of Mason Street, three and 50/100 feet; easterly by the line of Mason Street, eleven and 00/100 feet; southerly by the line of Mason Street, three and 50/100 feet; westerly by the line of Mason Street, twenty-two and 50/100 feet; northerly by the line of Mason Street three and 50/100 feet; easterly by the line of Mason Street, twenty-two and 50/100 feet; southerly by the line of Mason Street, three and 50/100 feet; westerly by the line of Mason Street, eleven and 00/100 feet; northerly by the line of Mason Street, three and 50/100 feet; easterly by the line of Mason Street, three and 50/100 feet; and southerly by the line of Mason Street, eleven and 50/100 feet; and southerly by the line of Mason Street, three and 50/100 feet; from elevation 57.4 to elevation 187.9; containing one hundred fifty-six square feet more or less.

All of the above containing three thousand seven hundred (3,700) square feet more or less and heing shown a plan entitled "City of Boston, Public Works Department, Engineering Division, Discontinuance Plan, Mason Street, Boston Proper, October 3, 1987, Gordon Barnes, Division Engineer" recorded with Suffolk County Registry of Deeds on May 5, 1987 and being Instrument No. 465

This deed is given in full compliance with the provisions of General Laws Chapter 44, Section 63A.

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IN WITNESS WHEREOF, the City of Boston has caused its corporate seal to be hereto affixed and these presents to be signed in its name and hehalf by Raymond L. Flynn, Mayor of the City of Boston, this <u>21</u> day of April, 1987.

CITY OF BOSTON,

Approved as to form:

## COMMONWEALTH OF MASSACHUSETTS

Suffolk, ss.

Boston, Massachusetts April <u>21</u>, 1987

Then personally appeared the above-named Raymond L. Flynn, Mayor of the City of Boston, and acknowledged the foregoing instrument to the free act and deed of the City of Boston.

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Exhibit C

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Boston, Massachusetts 02199

March 30, 1988



Michael S. Kelley Hall, Davison & Company 20 University Road Cambridge, MA 02138

PARKSIDE - 345KV TRANSMISSION LINE RE:

Dear Mike:

Per your request, I am going to give you an update of our proposed construction of the above referenced line as it pertains to Parkside. As previously mentioned, a review of your "as-built" of utilities within the discontinued portion of Mason Street, showed that there was very little remaining space between the new telephone and fire alarm ducts and the connector tunnel roof. Also, your field engineers located a row of soldier beams still in place along with the lagging that was used to construct the foundation for the Daughters of St. Paul building. beams and the marginal space above the tunnel roof would make the construction of our pipe cable transmission line very difficult.

Consequently, we sought to find a route revision to avoid using Mason Street. With the help of Scott Levitan we have, and it is shown on the attached sketch. You'll note that it requires us to be in the sidewalk and which results in a revised sidewalk transformer access proposed location for the Daughters of St. Paul building (to be renamed Parkside at Mason Street, I believe). Scott and our Distribution Division worked out the changes. So, it appears that we're well on our way with the revised route and will know more when we petition the City for approval.

Could you keep me appraised of the construction that will take place at "Parkside at Mason Street"? This would help to prevent any construction impact between yourself and us.

Sincerely,

Louis R. Delaplace, Principal Engineer

Transmission Division

EE & SO Department

Enclosure

LRD/tmh

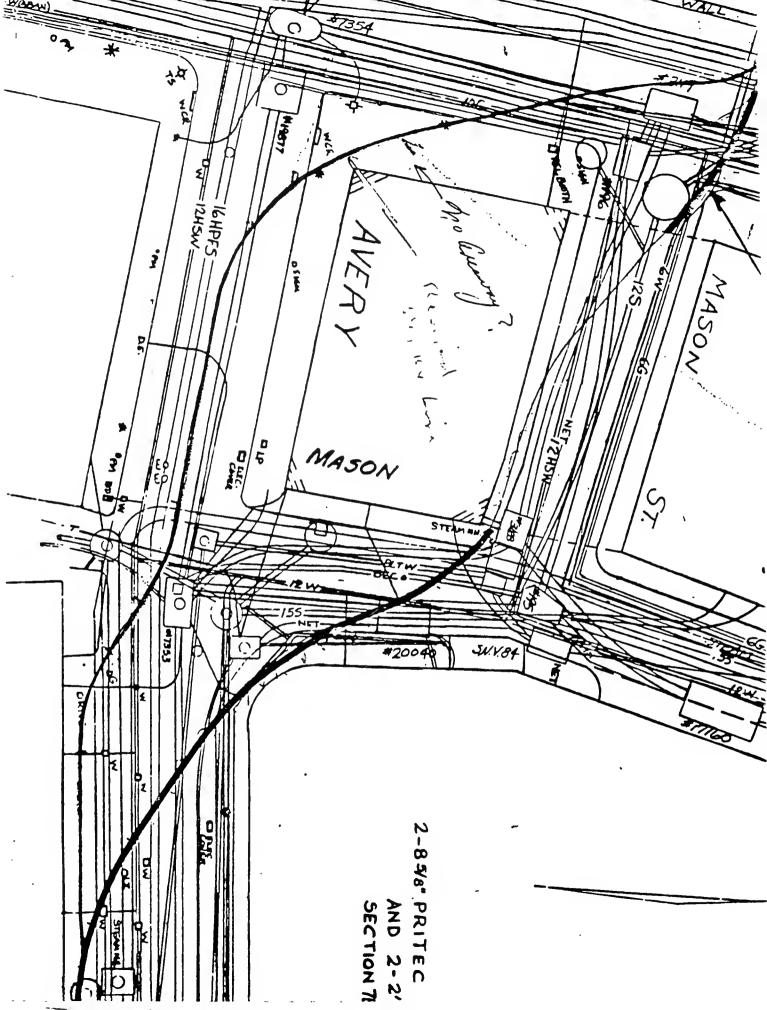
Mr. Scott Levitan - Parkside xc:

Mr. Frank Martin

File

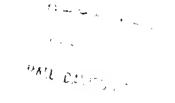
Mr. Peter Clarke

Mr. Robert Murphy



## Boston Water and Sewer Commission

425 Summer Street Boston, MA 02210-1700 617-330-9400





February 1, 1988

Hall. Davison & Company 20 University Road Cambridge, MA 02138

Attn: Mr. Michael S. Kelley

Re: 170 & 172 Tremont Street B.W.S.C. No. 86-43 S/P

Dear Mr. Kelley:

We have reviewed your submittal of January 19, 1988 and we have the following comments:

- 1. On April 12, 1987 the Boston Water and Sewer Commission was granted an easement by Tremont Place Realty Trust for the purpose of installing a 16 inch drain line through the Parkside West Garage (#170 Tremont Street) from a new manhole in the Tremont Street sidewalk to a new manhole in the Mason Street sidewalk. All pertinent information concerning BWSC facilities in this area can be found on the site plan for the Parkside on Common (Parkside West) project, entitled "Utility Relocation Plan, Mason Street", prepared by HW Moore Associates, dated 9/24/86 with revisions dated 4/31/87 and it is available from Mr. Scott Levitan of your office.
- A schedule, if available, should be provided for 2. the planned submission of a site plan and sewer connection permit for the Parkside at Mason Place project. At that time, all issues pertaining to this project can be discussed. Mr. Peter Wong of the BWSC should be contacted for the site plan requirements, if needed.

If additional information is required from BWSC to assist you in this project, please contact Mr. Edward Duggan of my staff.

Very truly yours

Michael O'Neill, P.E.

Division Engineer

MON/ED/qf

## RECEIVED



1 25 2 2 1288

HOD. DAVITOD & CO.

Hall, Davidson & Company 20 University Road Cambridge, MA. 02138

Attn: Mr. Michael Kelly

February 10, 1988

Dear Sir;

Cablevision of Boston has reviewed your site plan of the proposed underground connection at #170 Tremont Street and #172 Tremont Street in Boston.

Cablevision currently has no underground facilities within this project area and therefore has no objection to this construction.

Sincerely;

Robert Glynn

Cablevision of Boston

Robert Slynn

787-6730

## MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

RECEIVEL

Engineering & Maintenance Department 500 Arborway, Lamaica Plain, Ma. 02130

February 24 1988

Mr. Michael S. Kelley Hall Davidson & Company 20 University Road Cambridge, MA 02438

Re: Parkside 170 and 172 Tremont Street

Dear Mr. Kelley:

We have reviewed the sketches submitted with your letter of January 19, 1988, which detail the underground connection between the parking level of 170 Tremont Street and the basement level at 172 Tremont Street. The connector which lies only one level below the surrounding ground elevation will not affect any of the Authority's facilities or structures in the area. We therefore do not object to the construction of your proposed underground connection.

Since yely, yours,

Edward J. Rove

Chief Engineer

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Boston Gas Company 201 Rivermoor Street Boston Massachusens 02132 Telephone (617) 323-9210



Mr. Michael S. Kelley Hall, Davison & Company 20 University Road Cambridge, MA 02138

February 2, 1988

RE: BOSTON - "PARKSIDE" #170 AND #172 TREMONT STREET

Dear Mr. Kelley:

Your letter dated, January 19, 1988 with plans showing a proposed underground connection between Buildings #170 and #172 at the parking garage level, has been reviewed here with the following comments:

- The existing 6" main, installed in 1987 is shallow (1'-0" to 1'-6" below grade) and is steel pipe.
- The proposed construction between the two buildings will undermine and expose this gas main.
- Boston Gas Company has no objection to your proposed construction as long as some means is employed to adequately support this main during construction of the underground connection. Boston Gas Company must be notified just prior to your work so that we may confer with your Contractor on details of the proposed support method.
- This same gas main is to be relocated at some future date to make space available for a large electrical duct line. Whether the gas main is relaid before your project is underway is irrelevant to the protection required for the gas main.
- It would probably be better for us as well as you if the garage level work could be scheduled to be done <u>before</u> the gas main is relaid.

BOSTON - "PARKSIDE" #170 AND #172 TREMONT STREET

Please contact me, if you have any questions about this.

Very truly yours,

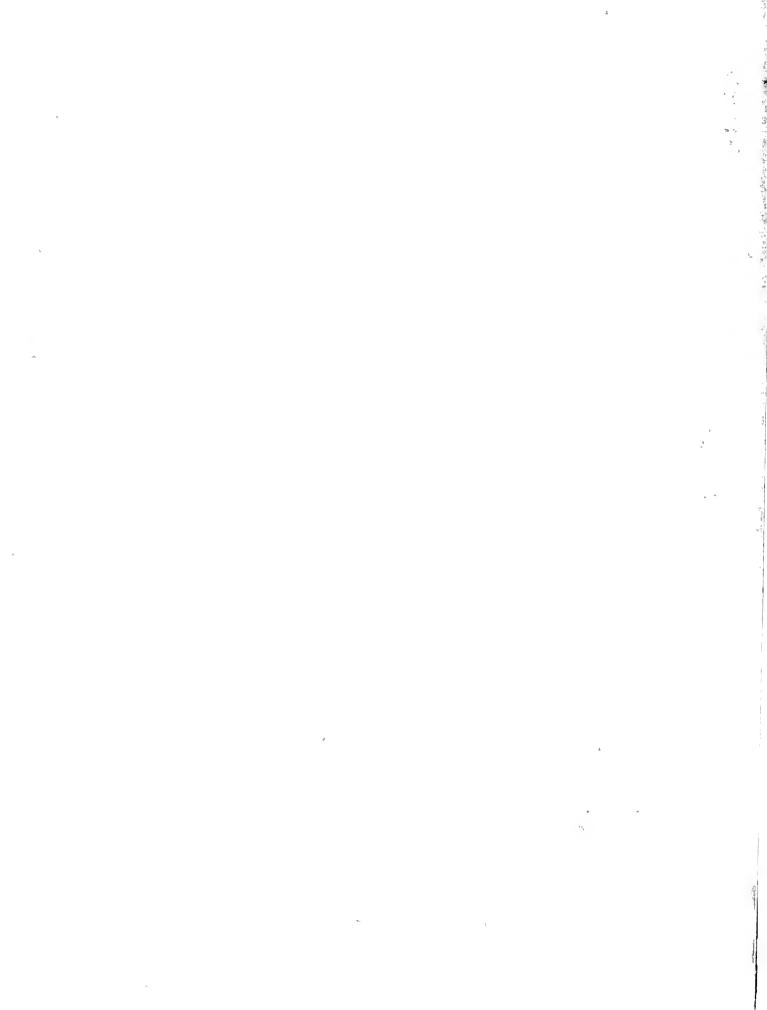
Richard J. Hat h

Project Manager

Governmental Construction

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